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No. 678

IN THE

United States Court of Appeals

For the Second Circuit

Appeal No. 24207

TECHNICAL TAPE CORPORATION,
Plaintiff-Appellant,

vs.

MINNESOTA MINING AND MANUFACTURING COMPANY,
Defendant-Appellee.

ON APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK

PLAINTIFF-APPELLANT'S APPENDIX

INDEX

Witnesses

	PAGES
Ackerman, Eli	162a-166a, 167a
Arnold, C. L.	133a-142a, 225a
Arnold, C. L., Mrs.	142a-145a
Arvey, Reuben V.	157a-161a
Christensen, Paul	167a-206a
Cohen, Paul	35a
Cammack, Allen B.	151a-156a, 156a-157a
Drew, Albert S.	100a-128a
Drew, Richard	39a-41a, 41a-42a, 73a-82a, 226a
Lake, Edward C.	91a-92a
Manley, Frank N.	38a
Rosenblatt, Seymour	215a-223a
Rosendorf, Samuel	145a-151a
Schilly, Ralph C.	83a-91a
Shalita, Paul	37a, 43a, 46a, 55a-56a, 64a-67a, 97a-99a
Smith, C. C.	223a-224a
Tierney, Hubert J.	27a, 36a-37a, 39a, 47a, 64a, 82a-83a
Trachtenberg, A.	128a-132a

Papers Printed

PAGES

Brandenberger French Patent 433,999 (Technical Exhibit 202T) 29a-31a

Decree Striking Minnesota's Jurisdictional Defense 28a

Disallowed Drew Tape Patent Application of October 27, 1930 (Excerpt) (Technical Exhibit 37) ..68a-72a

Docket Entries (Excerpts) 1a-3a

Drew I, U. S. Patent 1,760,820 (Exhibit 18) 92a-93a, 230a-231a

Drew II, U. S. Patent 2,177,627 (Exhibit A) 236a-237a

File Wrapper of Application for Drew II (Minnesota's Exhibit XXX) 32a-34a, 94a-95a, 95a-96a

Grossmann German Patent 372,925 (Technical's Exhibit 201T) 43a-46a

Hodgson U. S. Patent 1,467,108 (Exhibit 205) ...232a-233a

Judgment Below 4a-6a

Kronstein Austrian Patent 112,237 (Technical's Exhibit 158T) 57a-61a

Letter of September 25, 1953, from Minnesota to Christensen (Christensen Deposition Exhibit 2) 207a-208a

Letter of September 28, 1953, from Christensen to Minnesota (Christensen Deposition Exhibit 1) .. 206a

Letter of March 5, 1954, from Christensen to Minnesota (Christensen Deposition Exhibit 3) 208a-209a

Letter of March 15, 1954, from Minnesota to Christensen (Christensen Deposition Exhibit 4) 210a

Letter of March 17, 1954, from Minnesota to Christensen (Christensen Deposition Exhibit 5) 211a

PAGES

Letter of March 26, 1954, from Christensen to Minnesota (Christensen Deposition Exhibit 6) 212a-213a

Letter of March 26, 1954, from Christensen to Technical Tape (Christensen Deposition Exhibit 7)..213a-215a

Minnesota's German Opposition Statement of November 11, 1933 to Rado Application (Technical's Exhibit 189T) 47a

Minnesota's German Opposition Statement of April 28, 1934 to Rado Application (Technical's Exhibit 190T) 51a-52a

Minnesota's German Opposition Statement of June 28, 1936 to Rado Application (Technical's Exhibit 192T) 48a-50a

Minnesota's German Opposition Statement of March 2, 1937 to Rado Application (Technical's Exhibit 199T) 53a-54a

Opinion Below 7a-26a, 35a

Pearson Article of 1918 (Technical's Exhibit 206)..62a-63a

Stipulation of November 3, 1954 ..... 29a

Zimmerli U. S. Patent, 1,892,123 (Exhibit 207) ..234a-235a

MISCELLANEOUS

Colloquy of Court and Minnesota's Counsel 55a

Opening Statement of Minnesota 27a

Statement of Minnesota's Counsel 43a

Docket Entries

Excerpts From Docket Entries Below:

		Record Pages
1.	Technical's Complaint (November 17, 1951)	4039–4049
2.	Minnesota's Motion to Dismiss (January 15, 1952)	4054
3.	Judge Clancy's Opinion in Dismissing Complaint (February 15, 1952)	4093–4100
4.	Judge Clancy's Order Dismissing Complaint for Lack of Jurisdiction (March 12, 1952)	4111–4112
5.	Judge Clancy's Opinion in Denying Motion for Reargument	4162–4164
6.	Technical's Notice of Appeal from Order of Dismissal (April 10, 1952)	4165
7.	Mandate of this Court Reversing Dismissal Order of District Court (January 5, 1953)	4341–4343
8.	Order and Judgment on Mandate of this Court (January 30, 1953)	4344–4345
9.	Minnesota's Answer (March 30, 1953)	4357–4359
10.	Note of Issue for Trial (April 30, 1953)	4360
11.	Judge Sugarman's Order Granting Separate Trial of Jurisdictional Issue (September 11, 1953)	4499

Docket Entries

	Record Pages
12. Technical's Supplemental Complaint (October 23, 1953)	4575-4602
13. Minnesota's Answer to Supplemental Complaint (November 13, 1953)	4604–4607
14. Judge Ryan's Decree Striking Minnesota's Jurisdictional Defense (April 27, 1954)	5463–5464
15. Judge Dawson's Opinion Permitting Minnesota to Counterclaim (July 30, 1954)	5578–5580
16. Judge Ryan's Order Requiring Minnesota to Produce Documents (September 28, 1954)	5818–5821
17. Transcript of Trial Before Judge Bicks, dated November 26, 29, 30, December 3, 6-10, 13-16, 1954 and January 3-7, 10-15, 20, 1955	1–4038
18. Judge Bick's Opinion Holding Drew II Valid, Infringed and Not Misused (July 18, 1956)	5869–5896

Docket Entries

		Record Pages
19.	Order and Judgment of Bicks, J. (July 30, 1956)	5924–5927
20.	Technical's Notice of Appeal (July 27, 1956)	5931–5932
21.	Writ of Injunction to Technical (August 13, 1956)	
22.	Technical's Supplemental Notice of Appeal (August 27, 1956)	6112
23.	Clerk's Certificate (September 4, 1956)	6113

Judgment Below

[Record pages 5924-5927]

This cause came on to be heard by the Court, sitting without the intervention of a jury, in a trial of five weeks' duration, was argued and briefed by counsel; thereupon, upon consideration of the entire evidence, stipulations, exhibits, and the entire record in the case, as well as the briefs and arguments of counsel for the respective parties, and the Court having heretofore made and filed its Opinion to stand as Findings of Fact and Conclusions of Law under Rule 52(a) as the same appears of record herein, and which Opinion is made a part hereof by reference thereto;

IT IS, THEREFORE, ORDERED, ADJUDGED AND DECREED, as follows:

1. This Court has jurisdiction of the parties and of the subject matter stated in the Complaint, Amended Complaint and Supplemental Complaint and in the Counterclaim of the defendant.

2. United States Letters Patent No. 2,177,627 issued to the defendant, Minnesota Mining and Manufacturing Company, on October 31, 1939, upon the application of Richard Gurley Drew, was in all respects duly and lawfully issued and is good and valid in law as to every claim thereof except claim 9 as to which no adjudication of validity is made, no infringement of said claim having been found; and is enforceable in all respects by the defendant as sole and exclusive owner of the entire right, title and interest therein.

3. The plaintiff, Technical Tape Corporation, since prior to the time the defendant's Counterclaim was filed herein, has manufactured, used and sold transparent and colored non-fibrous, film-backed, pressure-sensitive adhe-

sive tape (as detailed in paragraphs 5 and 9 of the Agreed Statement dated November 16, 1954 and filed herein, and as exemplified by Defendant's Exhibits G, H, I, J, K, L, M, N, O, P, Q, DDDD, EEEE, D6 and E6 herein) in infringement of claims 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15 and 16 of said patent.

4. The defendant and counterclaimant has not been guilty of inequitable conduct; has not come into Court with unclean hands; and is not barred in any respect from enforcing the said patent.

5. A Writ of Injunction is ordered issued out of and under the seal of this Court directed to the plaintiff, Technical Tape Corporation, permanently enjoining and restraining, until the expiration of the patent-in-suit, it, its officers, agents, servants, employees and attorneys, and those persons in active concert or participation with them, who receive actual notice of this decree and order by personal service or otherwise from directly or indirectly making, using, selling, offering for sale, or directly or indirectly causing to be made, used, sold or offered for sale any transparent or colored non-fibrous, film-backed, pressure-sensitive tape or sheeting the same as the pressure-sensitive adhesive tape or sheeting exemplified by Defendant's Exhibits G, H, I, J, K, L, M, N, O, P, Q, DDDD, EEEE, D6 and E6, or any other transparent or colored non-fibrous, film-backed, pressure-sensitive adhesive tape or sheeting utilizing or embodying the invention of claims 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15 and 16 of said Letters Patent No. 2,177,627, or from in any way or manner infringing upon any of said claims of said Letters Patent, or from contributing to the infringement of or encouraging, inducing or aiding or abetting the infringement of such Letters Patent in any way or manner whatsoever. The Clerk of

this Court is directed forthwith to issue out of and under the seal of this Court its Writ of Injunction directed and commanded as herein provided.

6. The defendant and counterclaimant, Minnesota Mining and Manufacturing Company, shall have and recover from the plaintiff, Technical Tape Corporation, the damages which it has sustained by reason of the aforesaid infringement; and the question of whether damages shall be increased pursuant to 35 U. S. C., Section 284, because of the nature of such infringement, is deferred until the coming in of the Master's report.

7. This cause shall be referred to Dwyer S. Shugrue, Esq., 12 East 41st St., N. Y. C. as Special Master, to ascertain the damages adequate to compensate the defendant for the plaintiff's infringement.

8. The defendant shall recover of the plaintiff the taxable costs of the defendant incurred in this suit, and such costs and expenses as may be incurred by the Special Master in connection with his services herein; and the defendant shall have judgment and execution therefor.

9. Defendant's application for attorneys' fees is denied.

10. The plaintiff's Complaint, Amended Complaint and Supplemental Complaint are hereby dismissed at plaintiff's costs.

Enter:

/s/ ALEXANDER BICKS,
United States District Judge.

July 26, 1956.

Opinion Below

[Record, pages 5869-5896]

BICKS, *D. J.*

Technical Tape Corporation, hereinafter referred to as "Tech Tape", seeks a judgment declaring that United States Patent 2,177,627 is invalid and not infringed by the product it manufactures and markets under the trade name "Tuck". Minnesota Mining & Manufacturing Company, the defendant, which will be referred to as "3 M", has counterclaimed for an injunction against further infringement and damages.

The patent has been subjected to judicial scrutiny by the Courts in the Seventh Circuit and consistently upheld. *Minnesota Mining & Manufacturing Company* v. *International Plastic Corporation*, 62 F. Supp. 34 (N. D. Ill. 1945) aff'd, 159 F. 2d 554 (7th Cir. 1947); *Minnesota Mining & Manufacturing Company* v. *Pax Plastics Corp.*, 65 F. Supp. 303 (N. D. Ill. 1946) aff'd, 159 F. 2d 554 (7th Cir., 1947); *Minnesota Mining & Manufacturing Company* v. *Neisner Bros., Inc.*, 101 F. Supp. 926 (N. D. Ill. 1951) and 122 F. Supp. 752 (N. D. Ill. 1954). Plaintiff's procedural agility [See *Minnesota Mining & Manufacturing Co.* v. *Technical Tape Corp.*, 123 F. Supp. 497 (N. D. Ill. 1954); *Technical Tape Corp.* v. *Minnesota Mining & Manufacturing Co.*, 200 F. 2d 876 (2d Cir. 1952)] has been rewarded with an opportunity to litigate its claims before a tribunal unfettered by its own prior determinations.

The patent was issued on October 31, 1939 to 3 M as assignee of Richard Gurley Drew, one of its employees, and will be referred to as the "Drew Patent". The application was filed February 18, 1938 as a division of a co-pending application filed June 10, 1933 and was in part a continuation of a co-pending application filed May 1, 1931. The invention relates to "adhesive sheets having a backing with a non-fibrous surface (such as normal or waterproofed

films of regenerated cellulose) and a coating of normally tacky and pressure-sensitive adhesive united thereto. While not limited thereto, the invention relates especially to transparent adhesive sheets, to adhesive sheets in the form of adhesive tapes which may be sold in stacked or coiled form, and to adhesive sheets or tapes which are well adapted to the sealing or securing of wrappers composed of non-fibrous lustrous cellulosic films and the like". The specification recites that "[A]n object of the invention is to provide a unified adhesive coating possessed of such coherence in relation to adhesiveness and so firmly united to its backing that the adhesive sheet may be stripped from smooth non-fibrous surfaces (not possessing special chemical affinity for the adhesive), to which it may have been temporarily applied, without offsetting of adhesive material. Hence the adhesive coating may be termed 'non-offsetting', and this expression designates an important physical or physico-chemical property or characteristic of the adhesive coating, namely, that its coherency is greater than its adhesiveness."[1] 3 M markets the invented article under the well-known mark "Scotch Brand Cellophane Tape".

Succinctly, the issues in this case are: (1) Is the Drew Patent valid; (2) If valid, has it been infringed by Tech Tape; and (3) Assuming validity and infringement, has the conduct of 3 M been such as to disentitle it to relief against Tech Tape.

Plaintiff founds its claim of invalidity principally on the grounds that: (i) the alleged invention is not a patentable advance over the art because it required no special skill nor any "inventiveness".

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[1] A detailed description of the discovery disclosed in the patent and the inventor's claims are set out at length in the opinions first cited in the text; a repetition thereof would unduly and unnecessarily prolong this opinion.

(ii) the product claimed in the patent was patented and described by others in printed publications in this and foreign countries before the claimed invention thereof by Drew.

(iii) the alleged invention of the patent was (a) patented or described in a printed publication in a foreign country and (b) in public use more than two years prior to its filing date;

(iv) what the patent discloses as invention was developed by others;

(v) claim 9 of the patent defines an inoperative and useless product and was deliberately included, wherefore acceptance of the patent with such claim was not without deceptive intention;

(vi) what the patent discloses as invention is the same as is covered by the Drew Masking Tape Patent 760,820; and

(vii) the specification of the patent lacks the full, clear and concise description required by 35 U. S. C. A. § 112. These contentions will be treated seriatim.

The first ground of alleged invalidity is the not uncommon one urged against an article which is a plurality of well-known elements. It is a mere "aggregation", plaintiff argues, of cellophane and an adhesive—neither of which Drew claims to have invented—in which the two elements retain their original characteristics and perform exactly the same functions they possessed and performed before being brought together in the assembly. 3 M, on the other hand, contends that the amalgamation produces a new article, not then previously in existence, possessing qualities and utility different than the components standing alone. Novelty for the adhesive or of any ingredient thereof per se or of the film backing per se is not claimed, but

rather in the combination whereby a new article is produced. To discuss this issue in terms of "aggregation" or "combination" can lead to nothing but confusion. See, *A & P Tea Co.* v. *Super Market Corp.*, 340 U. S. 147, 151 (1950). The efforts of the industry to find an article of the utility possessed by the one described in the Drew Patent, the general need and extensive market for such article and the availability of materials to produce it furnish a more helpful guide.

As Judge Learned Hand observed in *Safety Car Heating & Lighting Co.* v. *General Electric Co.*, 155 F. 2d 937, 939 (2d Cir. 1946): "In appraising an inventor's contribution to the art, * * * the most reliable test is to look at the situation before and after it appears. * * * Courts, made up of laymen as they must be, are likely either to underrate, or to overrate, the difficulties in making new and profitable discoveries in fields with which they cannot be familiar; and, so far as it is available, they had best appraise the originality involved by the circumstances which preceded, attended and succeeded the appearance of the invention. * * * [T]his approach is more reliable than a priori conclusions drawn from vaporous, and almost inevitably self-dependent, general propositions."[2]

DuPont commenced marketing normal cellophane in 1924 and moisture proof cellophane in 1927. The latter type was especially adapted to the packaging of food products where protection against moisture loss or absorption was desired. That purpose, to be accomplished effectively,

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[2] See also *Landis Mach. Co.* v. *Parker-Kalon Corp.*, 190 F. 2d 543, 546 (2d Cir. 1951) per L. Hand, J.: "* * * [We] have over and over again resorted to the history of what went before, the duration of the period during which the invention was needed but failed to appear and its acceptance when it did. These circumstances have seemed to us, not indeed an absolute determinant of invention, for there is none; but at least the best, and indeed almost always the only, rational approach to a solution."

required a satisfactory seal for the cellophane wrapping. None was available. Instead, a confectioner's fold with a paper or rubber band was employed. Its search for such a seal led DuPont in 1926 to send samples of moisture proof cellophane to various adhesive manufacturers. It tried itself to develop such a seal but met with two obstacles which it could not surmount—bad odor of the adhesive and excessive dwell time for the adhesive to take hold. DuPont's adhesives chemist worked on the problem but the possibility that the solution lie in development of a pressure-sensitive cellophane backed adhesive tape didn't occur to him. Self deprecatingly he testified, "Somebody asked me why didn't it and I said I was too dumb".

Then came Drew who, although he refers to himself as a "tinkering fool" and "more of a cook than a chemist", had already invented paper backed masking tape. In June or July 1929 a paper jobber faced with the problem of producing a wrapper sufficiently waterproof to withstand submersion in water for a given time sought Drew's aid. About the same time Drew's superior, in quest for a wrapping which would keep moisture from rolls of masking tape obtained a quantity of waterproof cellophane from DuPont. This was Drew's first introduction to cellophane and he promptly related moisture proof cellophane to the problem which the paper jobber had presented to him. He "smeared" some adhesive on a strip of the cellophane and through trial and error ultimately evolved a theretofore unknown article—cellophane backed pressure-sensitive adhesive tape, aggressively and permanently tacky when fully dried, with an adhesive layer more highly cohesive than adhesive which could be wound and unwound and removed from surfaces without delamination or offsetting of adhesive. It filled the need for the satisfactory seal DuPont was looking for and introduced a new kind of tape of such inherent merit and versatility as to become common place in the home and office.

Opinion Below

DuPont had every incentive to come upon the article disclosed in the Drew patent. Notwithstanding that it had available to it the materials, the scientific personnel and the consultation of Brandenberger, one of the earliest producers of cellophane and the patentee of the patent strenuously urged here as anticipation of the Drew invention, it failed to make Drew's discovery.

It cannot successfully be controverted that prior to the advent of the article disclosed in the patent, cellophane had not been used as a backing in combination with an aggressively tacky and strongly cohesive rubber-resin type adhesive. The prior self adhering normally tacky adhesive tapes had a cloth or paper backing. The tacky adhesive penetrated the surface of the backing and obtained a mechanical anchorage due to the porosity and fibrous nature of the backing. The non-adhesive surface was not flat and consequently when the tape was wound in a roll there were only points of, rather than total, contact with the pressure-sensitive adhesive. Because there was a mechanical differential and an area differential between the two sides of the tape the roll could be unwound without delamination of the adhesive. Persons skilled in the adhesive tape art were committed to the thinking that mechanical anchorage was a *sine qua non* of an acceptable non-delaminating and non-offsetting adhesive sheet or tape. Drew also was of that mind on May 28, 1928 as evidenced by the caveat contained in the application he filed on that date for his masking tape patent, *viz.*, "An over sufficient saturation of the paper will render the surface unfit for subsequent coating * * *" (U. S. Patent 1,760,820, p. 5, lines 124-126).

It may be that Drew employed a backing with a non-fibrous surface contrary to the precepts of the art precisely because he was "more of a cook than a chemist". That a person having ordinary skill in the art would "know

better" than to attempt it does not negative patentability.[3] In retrospect, it would seem that what Drew did was simple and no more than the obvious. "Its simplicity should not blind us as to its character. Many things, and the patent law abounds in illustrations, seem obvious after they have been done * * *. Knowledge after the event is always easy, and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses may be brought forward to show that the new thing which seemed to have eluded the search was always ready at hand and easy to be seen by a merely skillful attention." *Diamond Rubber Co.* v. *Consol. Tire Co.*, 220 U. S. 428, 434-5 (1911). See also *Goodyear Tire & Rubber Co.* v. *Ray-O-Vac Company*, 321 U. S. 275, 279 (1944).

The claims in the Drew patent meet the "rather severe test" and conform to the standard of invention for combination patents enunciated in *A & P Tea Co.* v. *Super Market Corp.*, supra. Whether 35 U. S. C. A. § 103 lowered the standard of invention is an inquiry, therefore, which need not be pursued in this case. *Vermont Structural Slate Company, Inc.* v. *Tatko Brothers Slate Company, Inc.*, 233 F. 2d 9 (2d Cir. 1956). Compare *Welsh Manufacturing Company* v. *Sunware Products Co.*, — F. 2d — (2d Cir. July 9, 1956), *Lyon* v. *Bausch & Lomb Optical Co.*, 224 F. 2d 530, 535, 536 (2d Cir. 1955) cert. denied, 350 U. S. 911 (1955), and *L-O-F Glass Fibers Company* v. *Watson*, 228 F. 2d 40 (D. C. Cir. 1955), with *Wasserman* v. *Burgess & Blacker Co.*, 217 F. 2d 402 (1st Cir. 1954), *Interstate Rubber Products Corp.* v. *Radiator Specialty Co.*, 214 F. 2d 546 (4th Cir. 1954), *General Motors Corp.* v. *Estate Stove Co.*, 203 F. 2d 912 (6th Cir. 1953) and *Stanley Works* v. *Rockwell Mfg. Co.*, 203 F. 2d 846 (3d Cir. 1953).

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[3] "Patentability shall not be negatived by the manner in which the invention was made." 35 U. S. C. A. § 103.

Opinion Below

"Scotch Brand Cellophane Tape" has achieved phenomenal commercial success. The first year it was on the market sales were upwards of $100,000. without any advertising expense. Within ten years annual sales had increased to over $5,500,000.—advertising expense throughout this period was slightly less than 3% of sales. The wide acceptance of the product attests to its need and reflects its worth. If it can be said that the question of patentable invention in this case is a close one the very substantial commercial success enjoyed by the patented article "tips the balance" on that issue. See *Jungersen* v. *Ostey & Barton Co.*, 335 U. S. 560, 567 (1949).

As already noted the Drew Patent has been thrice adjudged valid. Implicit in said determinations is the findings that Drew's invention displays sufficient "inventiveness" to constitute a patentable advance over the art. The facts established on the trial herein support that holding.

Technical Tape pleaded or noticed forty-six references to patents and publications in support of its contention that the product claimed in the Drew Patent had been patented and described by others before Drew claims to have invented it. By pre-trial stipulation plaintiff reduced said references to the following nineteen:

FOREIGN PATENTS

1. Brandenberger 433,999 (French) delivered November 13, 1911, published January 20, 1912.
2. Kronstein 112,237 (Austrian) granted August 15, 1928, published February 11, 1929.
3. Kronstein 656,582 (French) granted January 2, 1929, published May 10, 1929.
4. Kronstein 293,293 (British) accepted March 14, 1929.

Opinion Below

5. Grossman 372,925 (German) granted February 10, 1920, published April 3, 1923.

6. Liesegang 440,712 (German) February 10, 1927.

7. Liesegang 253,940 (British) June 19, 1926.

8. Rado 682,785 (French) granted June 2, 1930, application filed October 4, 1929.

UNITED STATES PATENTS

9. Kronstein 1,944,562 granted January 23, 1934, application filed March 13, 1928.

10. Hodgson 1,467,108 granted September 4, 1923.

11. Mantell 1,850,760 granted March 22, 1932, application filed March 21, 1929.

12. Zimmerli 1,892,123 granted December 27, 1932, application filed April 12, 1928.

13. Teague 1,746,875 granted Feb. 11, 1930, application filed June 9, 1924.

14. Healy 1,752,557 granted April 1, 1930, application filed Feb. 13, 1925.

15. Charch 1,737,187 granted Nov. 26, 1929, application filed Jan. 3, 1927.

16. Carrington Re. 3,260 granted January 12, 1869.

17. Drew 1,760,820 granted May 27, 1930.

18. Drew Re. 19,128 granted April 3, 1934.

PUBLICATION

19. Article entitled "Pearson's Crude Rubber Compounding Ingredients", published 1918 by India Rubber Publishing Co., Inc., Page 372.

Opinion Below

The publication and each of the patents referred to as prior art, or the corresponding one of another country,[4] was before either Judge Barnes in *Minnesota Mining & Manufacturing Co.* v. *International Plastic Corp.*, supra, or in *Minnesota Mining & Manufacturing Co.* v. *Pax Plastics Corp.*, supra, or Judge Campbell in *Minnesota Mining & Manufacturing Co.* v. *Neisner Bros. Inc.*, supra, and was found not to anticipate the disclosures of the claims in suit. In the *International* and *Pax* suits U. S. Patent 1,850,760 to Mantell and 1,760,820 to Drew were stressed. On appeal it was held that the Mantell Patent did not relate to the adhesive tape art and that the finding of the District Court that the claims of the Drew Patent in suit were not anticipated by, and defined invention over, the Drew masking tape patent was fully supported by the evidence. In the *Neisner* case the Court noted that although the Brandenberger French Patent 433,999 had not itself been before the courts of the Seventh Circuit when the validity of the Drew Patent was sustained, similar patents, to wit, those issued to Kronstein, were considered and distinguished from the Drew Patent.[5]

In the instant case the emphasis seems to be on the Brandenberger French Patent, the Rado French Patent and the Kronstein Patents. In considering the disclosures made by these patents they are, of course, to be read unaided by the teachings of the patent which it is urged they anticipate. So viewed, Brandenberger's invention clearly relates exclusively to an insulating substance. His concern

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[4] It is not disputed that (i) the three Kronstein foreign patents contain no disclosure not present in the Kronstein U. S. patent; (ii) the Liesegang German Patent corresponds to the Liesegang British Patent specifications; (iii) Drew 1,760,820 corresponds to Drew Re. 19,128; and (iv) Rado French Patent 682,785 is essentially the same as Rado British Patent 344,469.

[5] See note 8, *infra*.

was with increasing the electrical resistance of cellulosic films or sheets. To achieve this objective he disclosed: first, the need for closing the microscopic pores which might be present in the film; second, that one of the ways of effecting such closure would be by coating the sheets with one or several layers of linseed oil, with a rubber solution, with any insulating varnish or with a mixture of these substances; third, that a closure of the pores could be obtained by bonding together two or more sheets of cellulose since the location of the pores could not coincide in the various sheets and thus an absolutely homogeneous surface would be obtained; fourth, that the sheets could be bonded by means of any adhesive substance, but, in order to increase their electrical resistance, the sheets could be coated first with linseed oil, a solution of rubber or any insulating varnish which themselves could serve as adhesives; and finally, that cellulose sheets which had been treated in such a process so as to present a surface coated with fatty ethers of cellulose, either nitrated or acetylated superficially, could be used instead of ordinary cellulose sheets. Such superficial etherification would result in a type of varnish which envelopes the cellulose sheet closely with an insulating layer free from any porosity and the sheet thus obtained could be used as such, as an insulating material, or they could be bonded to each other and coated like sheets of pure cellulose.

The primary function of the coating in the Brandenberger Patent is to close the pores in the cellulosic sheet and to increase its electrical resistance. The reference to the coating as an adhesive to bond the sheets is quite incidental—witness the omission of any suggested formulation for the adhesive substance or any reference to the purpose thereof other than to bond the sheets with the limited objective already indicated. "Any adhesive substance", Brandenberger pointed out, could be used. Ac-

cordingly he did not specify the recipe of the adhesive substance nor even mention whether it was to be normally tacky and pressure-sensitive or otherwise. Moreover the desirability of a substance which was more cohesive than adhesive was not presented since it was not contemplated that the sheets once bonded would be separated. Nor can it be said that Brandenberger unwittingly disclosed an adhesive which was normally tacky and pressure-sensitive and more cohesive than adhesive although he did not require or seek it. To constitute an anticipation the disclosure of prior art must be clear and certain. *Trussel Manufacturing Co.* v. *Wilson-Jones Co.*, 50 F. 2d 1027 (2d Cir. 1931). The prior patent, especially if it is of foreign issue, must teach the invention with sufficient clarity and explicitness to enable a person skilled in the art to understand its nature and carry it into practical use without the necessity of experimentation. *Allied Wheel Products* v. *Rude*, 206 F. 2d 752 (6th Cir. 1953); *Hollywood-Maxwell Co.* v. *Street's of Tulsa*, 183 F. 2d 261 (10th Cir. 1950); *Wisconsin Alumni Research Foundation* v. *Breon*, 85 F. 2d 166 (8th Cir. 1936) cert. denied, 299 U. S. 598 (1936); *Donner* v. *Sheer Pharmacal Corporation*, 64 F. 2d 217 (8th Cir. 1933) cert. denied, 290 U. S. 658 (1953). Ever after the need for a cellophane tape with a coating of a normally tacky and pressure-sensitive adhesive became apparent, Brandenberger, despite his extensive research and pioneering efforts in the development and manufacture of cellophane [6] and his then role as consultant to the Cellophane Division of DuPont, failed to discern in his own patent what plaintiff's expert now claims was apparent to anyone ordinarily skilled in the art. It would serve no useful purpose to probe into the relative skill in the art of

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[6] By way of reference to the role of Brandenberger in the development of cellophane, see discussion in *United States* v. *E. I. DuPont De Nemours*, 351 U. S. — (June 11, 1956).

Brandenberger and plaintiff's expert. The Court is persuaded that the vision of the latter was substantially brightened by his diligent study of the teachings of the Drew Patent, and that absent the wisdom thus acquired what is now asserted to be clear would have been as obscure to him as it was to Brandenberger and DuPont's adhesives chemist. Unless the disclosures of the Drew Patent are read into the Brandenberger Patent the only substantial similarity between them is that they each cellulosic film. Plaintiff's brief argues what indeed is the established law, that the discovery of a new use for an old article does not justify the granting of a patent. Here, however, we find not a new use but a new article possessing characteristics and functional utility totally lacking in the old.

Plaintiff would have the Court read the Brandenberger Patent in the light of alleged admissions made by 3 M in proceedings before the German Patent Office opposing the grant of a patent to one Rado. The disclosures in the Brandenberger Patent are to be gleaned from the patent itself—they cannot be extended or limited by argument or statements made by or on behalf of third persons in proceedings which do not involve the patent and to which the patentee is not a party. As an aid in interpreting the clear and unambiguous language of the Brandenberger Patent they have no probative force. Neither can they be availed of to supply disclosures which are lacking therein. Furthermore, what are relied on as admissions against interest are at best arguments of counsel [7] which examined in their entirety cannot be construed as at variance with the position of 3 M in this case.

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[7] Counsel's expression of opinion do not constitute admissions against interest. *Martin* v. *Burgess*, 82 F. 2d 321 (5th Cir. 1936).

Opinion Below

Judge Barnes' findings in the *Pax* case, *supra*[8] with respect to the Kronstein Patent are fully supported by the evidence in this case. Plaintiff suggests that "Judge Barnes did not have the benefit of the evidence here, such as the proof that the *inherent* property of a rubber solution is to form a normally tacky and pressure-sensitive adhesive when dried and Tierney's (defendant's expert) admission that the Kronstein coatings would produce a tacky or adhesive coating." A careful study of the record leads the Court to the conclusion that the alleged deficiency in the proof before Judge Barnes has not been supplied here.

Plaintiff's reliance on Rado French Patent 682,785, issued on February 18, 1930 and published on June 2, 1930, as prior art is necessarily grounded on the premise that the Drew Patent is not entitled to an effective filing date of May 1, 1931. Plaintiff recognizes that a true divisional application is entitled to the filing date of its parent but urges that Drew's subsequent application cannot be accorded the benefit of the earlier filing date because the disclosures in the earlier application were inoperative. The evidence is clearly to the contrary. Examples C and D in

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[8] In the *Pax* case, *supra*, at page 308, the Court found: "The Kronstein U. S. patent 1,944,562 and the equivalent British patent 293,293, do not anticipate the products of the claims in suit. They relate to an electrical insulating band or ribbon which is asserted to improve upon the prior art by using a backing of non-fibrous cellulose film (cellophane) in place of cloth or paper, and which (as in the prior art) is coated with insulating material such as rubber, linoxyn, nitro-cellulose varnish, etc. The cellophane may be coated on one or both sides, and one coating may serve as a so-called adhesive. There is nothing to suggest that the phrase 'any desired degree of adhesiveness' (page 2, col. 2, lines 34-39 implies a normally tacky and pressure-sensitive adhesive condition. The term 'adhesive' is very broad and applies to normally non-tacky adhesives (such as those of postage stamps). The coatings of these patents may retain some wet adhesiveness temporarily, but in a short time dry out to a non-tacky condition. When Kronstein uses rubber solution, he obtains a frisket cement type of coating like Mantell."

the 1931 application were operative. An article made in conformity with example C was commercially produced by 3 M between November 1930 and August 1931 and plaintiff's expert successfully made tapes following said examples.

Section 102 of Title 35 provides that "A person shall be entitled to a patent unless—(b) the invention was patented or described in a printed publication in this or a foreign country • • • more than one year prior to the date of the application for patent in the United States • • •." With respect to applications filed before August 5, 1940 and patents granted thereon, however, the applicable period is two years. Pub. Law 593, 82d Cong., 2d Sess., § 293 Sec. 4(d), 66 Stat. 815 (July 19, 1952). Under the circumstances the Rado Patent does not constitute a statutory bar.

The Court has examined the publication and the remaining patents referred to as prior art and compared each with the patent in suit. It is apparent that the Drew Patent is sufficiently distinguished from them.

The determination that the Drew Patent is entitled to a 1931 filing date is dispositive of the principal ground urged by Tech Tape in support of its contention that the invention was in public use more than two years prior to the date of the application for patent. The public use upon which reliance is placed is a sale on December 5, 1930 by 3 M to *Shellmar Products Co.* Plaintiff asserts that the subject of the sale was made in conformity with Example E which was first disclosed more than two years thereafter in the 1933 application. The evidence does not sustain this allegation. It establishes that the adhesive on the article sold to *Shellmar* was not materially different from Example C in the 1931 application.

It is asserted that Drew is not the true inventor of the patent in suit. Admittedly, Drew did have other hands help him in the manual work incident to following through his

ideas and conceptions, but aid thus rendered does not elevate the helpers to the rank of inventors or co-inventors nor alter Drew's status as the sole inventor. The others worked with Drew and under his direction but made no contribution beyond physical assistance. The inventive genius resided in Drew alone.

Tech Tape's position that Claim 9 of the patent is void for want of utility or operability is not well founded. Lack of commercial success *per se* does not establish lack of utility. *O'Donnell* v. *United Shoe Machinery Corporation*, 2 F. Supp. 178 (D. Mass. 1933). Defendant established that it manufactured the article described in Claim 9 and that sometimes it performed satisfactorily and at other times it did not. Absent proof of total incapacity the defense of non-operativeness or non-utility is not available. *National Slug Rejectors* v. *A. B. T. Mfg. Corporation*, 164 F. 2d 333 (7th Cir. 1947) cert. denied, 333 U. S. 832 (1948); *Emery Industries* v. *Schumann*, 111 F. 2d 209 (7th Cir. 1940); *In re Oberweger*, 115 F. 2d 826 (C. C. P. A. 1940); Walker, *Patents*, § 67 (Deller ed. 1937).

The charge of double patenting has not been substantiated. The Drew Masking Tape patent refers to an adhesive sheet as a new article of manufacture comprising a unified paper backing with a pressure-sensitive adhesive coating united to one surface thereof. The patent in suit discloses as a new article of manufacture a non-fibrous sheet. The difference is not merely semantic. As has already been indicated the art prior to the Drew Patent led away from cellophane—a fiber free film—as a backing for a pressure-sensitive normally tacky non-offsetting and non-delaminating adhesive tape. The article of the Drew Patent was unknown to the inventor when he filed his application for the Masking Tape patent and is not disclosed therein. The substantial dissimilarity of the claims in the two patents conclusively refutes the suggestion of double patenting. *Western Electric Co.* v. *General Talking Pic-*

tures Corp., [illegible] F. 2d 932 (2d Cir. 1937), aff'd 304 U. S. 175 (1938).

Plaintiff's final ground of asserted invalidity is that the patent fails to make the "full, clear, concise and exact" description of the alleged invention required by 35 U. S. C. A. § 112. Testimony of Tech Tape's expert that he successfully made tape with the formulae set out in Examples C, D and E demonstrates that the specification of the invention and the manner and process of making any use of it is sufficient to enable a person skilled in the art to which the invention pertains to make and use the same. No more is required. A similar claim of non-compliance with the statutory standard for clarity and exactitude was treated at some length and rejected in the *International* case, 159 F. 2d 554, 558. The later decision of the Supreme Court in *Faulkner* v. *Gibbs*, 338 U. S. 267 (1949)[9] and 35 U. S. C. A. § 112,[10] effective January 1, 1953, underscore the soundness of that determination.

The contention of 3 M that the accused product infringes is resisted by a demonstration of the absence of

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[9] As was argued in the *International* case, Tech Tape urges that the claims of the Drew Patent do not meet the requirements of *Halliburton Oil Well Cementing Co.* v. *Walker*, 329 U. S. 1 (1946). In discussing *Halliburton* the Supreme Court stated in *Faulkner* v. *Gibbs*: "We there held the patent invalid because its language was too broad at the precise point of novelty. In the instant case, the patent has been sustained because of the fact of combination rather than the novelty of any particular element." The same may be said of the patent in suit.

[10] Section 112 provides: "An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claims shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." The language of the Act suggests a greater liberality in the use of functional expressions in combination claims. See Commentary on The New Patent Act, 35 U. S. C. A., p. 25.

outright duplication. That Tuck Tape is substantially identical with the tapes which were held as infringements of the Drew Patent in the *Pax* and *Neisner* cases, *supra*, is admitted in the pleadings. Indeed, in its brief plaintiff admits that if its product had been before the Court in either of said cases it would have been adjudicated an infringement. The accused product serves the identical purpose and in exactly the same manner as does Scotch Brand Cellophane Tape. The two products look alike and for all practical purposes cannot be distinguished except by a trained chemist. Tech Tape simulates as best it can the dispensing and marketing techniques employed by 3 M. The difference between the two products resides solely in the composition of the adhesive. Tech Tape claims to have employed two kinds of adhesive; one of rubber-resin and the other made from polyvinyl ether polymers which is all synthetic resin and has no rubber. As to the former the distinction claimed is in the type of rubber and resin used; with respect to the latter that it is all synthetic resin and no rubber. The substituted components of the adhesive serve the same functions and have the physical properties characteristic of the pressure-sensitive adhesives of the "rubber-resin" type suggested in the patent. Some of the claims of the patent call for "rubbery base" adhesive, others for a "rubber-resin" type adhesive, and others merely for a non-offsetting normally tacky and pressure-sensitive water insoluble transparent flexible adhesive coating. As Judge Campbell stated in the *Neisner* case, *supra*, at 928:

> "The normal construction of the expression 'rubbery base' is that the product is similar to rubber at least in some of its physical properties as, for example, in its elasticity, stretchiness and the like. The adhesive coating of the accused tape clearly fulfills such a description. Similarly, the term 'rubber-resin type' adhesive properly indicates an adhe-

sive having the physical properties of rubber-resin adhesives, which properties defendant's coating patently possesses. Furthermore, the use of 100% resin, natural or synthetic, rather than the suggested proportions of rubber and resin as described in the Drew patent, might be more accurately denoted as merely a change in degree rather than in kind."

Infringement cannot be avoided by the mere introduction of minor variations nor by the use of equivalents which function similarly as the original. *Graver Tank & Mfg. Co. Inc.* v. *Linde Air Products Co.*, 339 U. S. 605 (1950), rehearing den., 340 U. S. 845 (1950); *Finkelstein* v. *Kress*, 113 F. 2d 431 (2d Cir. 1940).

By way of reply to 3 M's counterclaim for an injunction against further infringement and damages Tech Tape asserts that 3 M has unlawfully attempted to extend its patent monopoly of cellophane tape to cover products not covered by any valid claim thereof. It seeks to invoke the doctrine enunciated in *Morton Salt Co.* v. *G. S. Suppiger Co.*, 314 U. S. 488 (1942) that a Court of equity will not lend its aid to protect a patent monopoly when the patentee is using it as an effective means of restraining competition with its sale of an unpatented article. To prevail in this position, therefore, Tech Tape must establish that 3 M used the Drew Patent in an attempt to monopolize the sale of unpatented tapes or to gain some market or other advantage over other competitors in the field of the unpatented article. *Automatic Radio Manufacturing Co. Inc.* v. *Hazeltine Research, Inc.*, 339 U. S. 827 (1950), rehearing den., 340 U. S. 846 (1950). Short of a refusal to sell its Scotch Brand Cellophane Tape unless the purchaser also bought its unpatented tapes, or a refusal to sell unpatented tapes unless the purchaser deals in Scotch Brand Cellophane Tape to the exclusion of cellophane or other tapes of other manufacturers, the *Morton Salt* case doctrine is inapposite.

Opinion Below

There has been a complete failure of proof that the sales policy of 3 M falls within the interdicted conduct. 3 M distributes its products through upwards of 30,000 outlets. Included among them are more than 6000 paper wholesalers and 4000 commercial stationers. Many thousands of 3 M's distributors and jobbers handle competitive tapes and 3 M has never required either that they handle its tapes exclusively or as a condition of buying one type of tape that they also buy any other. A large percentage of distributors identified by the President of Tech Tape as 3 M distributors in the New York area are, according to his testimony, also distributors of Tech Tape's products. He further testified that many Tech Tape jobbers or distributors also handle 3 M products. Of the large number of 3 M distributors over the approximately three year period preceding the trial Tech Tape points to seven, who in the aggregate account for a relatively minutial portion of the total 3 M tape business, to establish its contention. The situation with respect to each of these seven distributors has been considered and the Court is satisfied that the conduct of 3 M in each instance was motivated solely by honest business considerations in no wise related to an attempt to extend the monopoly of the Drew Patent.

The Drew Patent is valid and infringed. A decree for an injunction and an accounting may be submitted in accordance with this Opinion. Decision as whether the damages found should be increased pursuant to 35 U. S. C. A. § 284 is deferred until the coming in of the Master's report. See *Patterson-Ballagh Corp.* v. *Moss*, 201 F. 2d 403, 408 (9th Cir. 1953) and cases cited.

The foregoing shall constitute Findings of Fact and Conclusions of Law in accordance with Fed. R. Civ. P. 52(a).

Dated: July 18, 1956.

s/ ALEXANDER BICKS,
United States District Judge.

Opening Statement of Minnesota

[Record p. 8]

"The invention will be explained more in detail in the evidence, but for the moment I wanted to make the point that the invention of this tape is the article. It is not the ingredients of which this is made. It is merely the article itself, which consists of the film backing with the pressure-sensitive adhesive on it."

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Cross-Examination of Hubert J. Tierney, Minnesota's Vice-President and Expert Witness

[Record p. 202]

"Q. When Drew filed his application for the patent in suit, the adhesive was well known, wasn't it? A. Yes, it was.

Q. There was nothing new in that? A. Adhesives that had, of themselves, the area of normally tacky and pressure-sensitive adhesive character were known and in use years before this Drew patent was initially filed, yes.

Q. And the cellophane was old, too, that was known? A. Yes.

Q. Drew didn't have anything to do with making cellophane? A. No."

Decree

[Record pp. 5463-5464]

Defendant by its answer having denied an actual controversy with respect to the validity, and infringement of Letters Patent No. 2,177,627, existed between the parties to this suit at the time of the filing of the original complaint on November 17, 1951; this Court having ordered, as the defendant prayed for in its answer to the supplemental complaint, that a separate trial under Rule 42(b) of the Federal Rules of Civil Procedure, be held on the separate issue as to whether an actual controversy existed at the time the complaint was filed; said trial of said issue having been had on April 7th through 12th, 1954; the parties hereto having presented oral and documentary evidence directed to said issue; counsel for the parties having been heard in summation and final argument; this Court having given due consideration to said evidence and to said summations and final arguments; this Court having found that plaintiff has met its burden of proof of establishing, by a fair preponderance of the credible evidence, that an actual controversy existed between the parties hereto prior to the filing of the original complaint herein and that this Court has jurisdiction to entertain this suit; and this Court having made no specification required for the entry of partial judgment by Rule 54(b) of the Rules of Civil Procedure;

IT IS HEREBY ORDERED that the defense upon which this trial has been ordered and held be, and the same hereby is, stricken and that those portions of defendant's original answer and of defendant's supplemental answer which are directed to said defense be, and the same hereby are, stricken.

(s) Sylvester J. Ryan
SYLVESTER J. RYAN
United States District Judge

Dated: April 27, 1954

Stipulation, Dated November 3, 1954

"... for a substantial period of time prior to the grant of the patent in suit Minnesota Mining placed patent markings on its cellophane pressure sensitive tape, transparent and colored, under the designation 'Made under one or more of the following United States Patents' or some similar designation ... Among the patents included in the aforesaid markings from the time prior to the date of issue of the patent in suit until a couple of years after its issue, was the masking tape patent, Patent No. 1,760,820, or its reissue, Number 19,128."

• • •

Technical's Exhibit 202T

FRENCH PATENT NUMBER 433,999

XII. Precision Instruments, Electricity

6—Transmission and measurement of electricity, various apparatus.

Insulating material for pieces or cables conducting electricity.

Jacques Edwin Brandenberger
residing in France (Vosges)

Date of application: November 12, 1910
Date of issuance: November 13, 1911
Date of publication: January 20, 1912

(Patent whose issuance has been delayed in execution of article 11, section 7 of the law of July 5, 1844 amended by the law of April 7, 1902.)

Technical's Exhibit 202T

The invention relates to an insulating substance destined primarily for cables or wires for the transmission of electrical energy but which can also be used whenever it is necessary to achieve insulation of a conducting piece of any form.

The insulating material consists of a cellulosic film starting from any aqueous solution of cellulose as initial product and, in particular, from a solution of cellulosic sodium xanthate (viscose). The cellulosic films, when applied as an uncoated film only, which are used in a thickness of only 0.05 millimeters can resist about 400 volts; but this resistance is increased to a considerable extent by the closing of the microsopic pores that might be present in the films; this closure can be effected very easily by coating the cellulose sheets with one or several layers of linseed oil, with a rubber solution, with any insulating varnish or with a mixture of these substances. Then these cellulose sheets can resist more than 1000 volts.

In order to reach the closure of the pores we can also bond together two or more sheets of cellulose; since the location of the pores will not coincide in the various sheets, we obtain an absolutely homogeneous surface.

The sheets can be bonded by means of any adhesive substance, but, in order to increase their electrical resistance, they can be coated first with linseed oil, a solution of rubber or any insulating varnish. These coatings or varnishes can themselves serve as adhesives.

Instead of ordinary cellulose sheets we can use cellulose sheets which have been treated in such a process so as to present a surface coated with fatty ethers of cellulose, either nitrated or acetylated superficially. Such superficial etherification results in a type of varnish which envelopes the cellulose sheet closely with an insulating layer free from any porosity. The sheets thus obtained can be used as such as an insulating material or they can be bonded to each other and coated like sheets of pure cellulose.

Technical's Exhibit 202T

SUMMARY:

1. Insulating material for pieces, wires and cables transmitting electricity consisting of sheets of cellulose or cellulosic films obtained when starting from any aqueous solution of cellulose as initial product and, in particular, from a solution of cellulosic sodium xanthate (viscose); these sheets of cellulose being used either as single layers, or after bonding several sheets together, with or without an exterior coating formed by one or several layers of linseed oil, or of a rubber solution or of any insulating varnish.

2. The production of insulating material according to Paragraph 1, where cellulose sheets or ordinary cellulosic films have been substituted by cellulosic sheets which have been coated on the surface by fatty ethers of cellulose, either nitrated or acetylated superficially.

J. E. BRANDENBURGER

Minnesota's Exhibit XXX

[pp. 181-183 of File Wrapper of Application for Drew II]

Appeal No. 30,643 1063

Hearing:
July 31, 1939

IN THE

UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte Richard Gurley Drew

Application for Patent filed February 18, 1938, Serial No. 191,259, a division of an application filed June 10, 1933, Serial No. 675,291. Adhesive Sheeting.

Mr. Paul Carpenter for applicant.

This is an appeal from the action of the examiner finally rejecting claims 32, 41, 42, 44, 45, 46, 49, 52 and 54 to 60, inclusive.

Claims 45 and 46 are illustrative and read as follows:

45. An adhesive sheet comprising a regenerated cellulose film having a waterproofing coating bonded thereto and a normally tacky and pressure-sensitive non-offsetting rubber-resin adhesive coating upon said waterproofing coating, the waterproofing coating being of a kind to which the adhesive coating makes better anchorage than to regenerated cellulose film surfaces, the adhesive sheet having its parts so firmly united that it may be unwound from rolls without delamination or offsetting of adhesive.

46. An adhesive sheet comprising a regenerated cellulose film having united thereto a waterproofing coating com-

prising a cellulose ester highly plasticized with a synthetic resin and providing a smooth non-fibrous surface, and a water-insoluble normally tacky and pressure-sensitive non-offsetting rubber-resin adhesive coating united to said surface, the parts of the composite adhesive sheet being transparent, and so firmly united together that the adhesive sheet may be unwound from rolls without delamination or offsetting of adhesive.

The references relied upon are:

British Patent,	253,940,	June 19, 1926,
Drew,	1,760,820,	May 27, 1930,
Drew,	Re. 19,128,	Apr. 3, 1934,

Remington, Practice of Pharmacy, 7th Ed., 1926, pages 518-520.

We agree with the examiner that there is no invention in merely substituting a non-fibrous base for a paper base, to which appellant contends his reissue patent No. 19,128 is limited. If any suggestion is needed for the use of a regenerated cellulose backing, it is satisfied by the British patent.

That one surface of the backing should be repellent to the pressure sensitive adhesive is indicated in claim 5 of the Drew patent which as drawn is for any cellulosic backing.

It thus appears that claims 32, 41, 42, 44, 52 and 54 to 57, inclusive, teach and cover nothing not obvious to those skilled in the art over the Drew patent.

We regard those claims also as vague and indefinite, as contended by the examiner. The courts have consistently condemned compositions so compounded as to produce the desired results, no other composition characteristic being pointed out in the claim. See In re Laucks et al., 86 Fed. (2d) 833; In re Wait, 83 Fed. (2d), 696.

Minnesota's Exhibit XXX

Claims 45, 46, 49, 58, 59 and 60 include the primer coat in one way or another. This is included in the allowed claims. All of the claims of this group might be considered indefinite as to the waterproof coating, except claim 46, but in view of the claims already allowed, we cannot take the position that these claims are vague and indefinite.

It is our view that the claims are unduly multiplied and that claims 46, 59 and 60 should be sufficient in addition to the allowed claims.

The decision of the examiner is reversed as to claims 46, 59 and 60, but is affirmed as to the other appealed claims.

EUGENE LANDERS
Examiner-in-Chief

M. EDINBURG
Examiner-in-Chief

F. J. PORTERS
Examiner-in-Chief

BOARD OF APPEALS

August 8, 1939

Mr. Paul Carpenter,
140 S. Dearborn St.,
Chicago, Ill.

Cross-Examination of Paul Cohen, Technical's President

[Record page 96]

"Q. When did Technical start operating there? A. Well, we leased that factory in about October of 1947 and we were designing and building our machinery for a period of quite a few months and some time, I think in the late spring of 1948, we began production.

Q. What did you begin to produce? A. We produced several products, the principal ones at the initial stage was masking tape.

Q. And then what was the next kind of tape that you produced? A. Cloth tapes and plastic tapes, non-fibrous vinyl-backed plastic tape."

• • •

Excerpt from Opinion Below

[Record page 5873]

"Novelty for the adhesive or of any ingredient thereof per se or of the film backing per se is not claimed, but rather in the combination whereby a new article is produced."

• • •

Cross-Examination of Hubert J. Tierney, Minnesota's Vice-President and Expert Witness

[Record pages 258-259]

Q. Now this is the common everyday surgical tape, and that is what they call it, don't they? A. They call it surgical tape, yes.

Q. And that has been on the market, that general type, long before Drew ever claimed to have made any invention with this patent in suit? A. I think that is right, yes.

Q. That has a cloth back? A. Yes.

Q. And it is a pressure-sensitive normally tacky adhesive on one surface? A. Yes.

Q. It is water insoluble? A. Yes.

Q. And it does not delaminate nor does it offset when you roll--when you unroll the tape from the roll? A. Yes.

Q. You mean yes, it does not? A. It does not.

Mr. Morris: Let us mark that in evidence or for identification, if you will, please. Do you want to look at that, your Honor?

The Court: This is just ordinary surgical tape?

Mr. Morris: Just what you buy in the drug store. We bought that in the drug store in the last day or two.

Mr. Spille: I bought it.

Mr. Morris: Mr. Spille bought it. That is the ordinary standard stuff you buy and use around the house, and it has been in existence long before, as the witness said, long before Drew ever claimed to have made any invention.

Will you please mark that for identification.

(Marked Plaintiff's Exhibit 11 for identification.)

Q. Now that Exhibit 11, the tape that we just put in here, has zinc oxide in it, doesn't it, in the adhesive? A. I

believe it does. I have no way of knowing, but I know that surgical adhesives have generally been referred to as zinc oxide type of adhesive tape.

Q. And that was long before Drew started? A. Oh, before Mr. Drew made his first adhesive tape, yes.

Q. Yes? A. I think that is right.

• • •

Redirect Testimony of Paul Shalita, Technical's Vice-President and Expert Witness

[Record pp. 3089-3090]

Q. Mr. Shalita, what do you obtain when you coat a rubber solution on plain cellophane? A. You obtain a transparent pressure-sensitive adhesive.

Q. On the cellophane? A. On the cellophane.

Q. When it is wet or when it is dry? A. When the solvent has evaporated and you are left with a dry film of rubber.

• • •

[Record pp. 3439-3440]

Q. And is that rubber that is left on the cellophane tacky or non-tacky? A. It is tacky.

Q. Is it pressure-sensitive or non-pressure-sensitive? A. It is pressure-sensitive.

Q. Is that the inherent characteristic of a dried film made from a rubber solution after the solvent has evaporated, that is tacky? A. Yes, that is the characteristic of it.

Q. Common garden variety rubber, or some special kind of rubber are you referring to? A. No, I am referring to common natural garden variety of rubber.

• • •

Direct Testimony of Minnesota's Witness, Frank N. Manley of Johnson & Johnson

[Record p. 561]

"Q. How early did Johnson & Johnson start manufacturing surgical tape, do you know? A. Well, I believe historically it was one of their original products, and the company is approximately seventy years old.

Q. And they were making surgical tape when you first went with Johnson & Johnson? A. Yes."

• • •

[Record pp. 562-563]

"The Court: Was the surgical adhesive tape substantially as it is now commercially sold, sold in these respects anyway, that it was pressure-sensitive tape and that it could be rolled without offset and delamination?

The Witness: Correct, sir.

The Court: And, generally it had substantially the same qualities of the surgical tape that we now see commercially sold.

The Witness: That is correct."

Cross-Examination

• • •

[Record pp. 566-567]

Q. All right. Now when did Revolite or Johnson & Johnson commence the manufacture of industrial cloth-backed pressure-sensitive adhesive tapes?, A. I would say somewhere in the late '80s.

Q. In the late 1880s? A. Yes.

Q. And they also manufactured cloth-backed pressure-sensitive adhesive tapes which were used for such purposes—for surgical purposes, and which are commonly known as surgical tape? A. Right.

Q. In these surgical tapes that Johnson & Johnson or its subsidiaries manufactured and sold, as you say, from the 1880s, do you know in general what the composition of the adhesive was on the tape? A. I am not a technician, but I assume and I would know that we used a lot of rubber and some pitches in making adhesive tapes.

• • •

Direct Testimony of Hubert J. Tierney, Minnesota's Vice-President and Expert Witness

[Record p. 60]

* * *

"This disclosure has to do with the normally tacky and pressure sensitive type [of adhesives]. It is normally tacky at normal temperatures, and it is pressure-sensitive and those terms have become widely accepted and descriptive of that type of adhesive that has its adhesive character by mere application to the surface without the use of other activating means such as water, heat or the like."

* * * *

Cross-Examination

[Record p. 287]

"It picks up a light weight, so it is a normally tacky and pressure-sensitive adhesive, as I have admitted."

Direct Testimony of Richard Drew, the Alleged Inventor of Drew II, called by Technical as Hostile Witness

[Record pp. 1608-1611]

* * *

"Q. * * * If you had left the zinc oxide out of the masking tape adhesive would it have been a transparent adhesive?

Mr. Haight: May it please the Court, that certainly is a hypothetical question.

Mr. Morris: I don't know why he can't give an opinion.

The Court: Is this witness competent to tell us what the removal of zinc oxide from the adhesive

tape formula then in use would do to the adhesive? If he is competent, what is the objection?

Mr. Haight: There isn't any if he has ever done it and knows. But the way the question is asked it is an iffy question.

The Court: If the witness doesn't know, of course. He is too careful and deliberate a gentleman to answer questions that he doesn't understand. I will overrule the objection.

Do you understand the question?

The Witness: Yes.

A. My answer is yes, if the zinc oxide had been left out the adhesive would have been transparent rather than opaque. But it wouldn't have been a—it would have had a brownish cast coloring to it, due to the Solros.

• • •

By Mr. Morris:

Q. Well, if you left out the zinc oxide from that masking tape adhesive would it have rendered it unusable as a pressure-sensitive adhesive for tape? A. Let's see. We are still talking about the 137-30 Solros.

Q. Yes, that is the adhesive that you were using in June or July 1929. A. In that particular formula I would think offhand that would have been very close to one or more of the experimental transparent adhesives we subsequently evaluated. That would be 137 pounds of rosin to 250 pounds of rubber.

Q. It would have been satisfactory? A. I think it is in the same class as the exploratory transparent adhesives we subsequent came to.

Q. I am not quite clear on that. If you took the zinc oxide out it would still be a satisfactory pressure-sensitive adhesive for tape; am I right in that? A. Well, it will not

be the kind of adhesive we eventually arrived at. But, as I said before, I think it would be in the same classification as the early exploratory formulas we evaluated.

Q. In so far as it would have been satisfactory from the point of view of non-offsetting or non-delamination; is that right? A. I think so, yes.

Q. And also it would have been satisfactory from the point of view of tackiness? A. Yes.

• • •

Direct Testimony of Richard Drew, the Alleged Inventor of Drew II, called by Technical as Hostile Witness

[Record p. 1548]

• • •

Q. In 1927, let us say, what were your duties at Minnesota Mining? A. I was heading up the tape activity at that time.

Q. And in 1926? A. The same duty.

Q. And in 1925? A. 1925, part of 1925 I was helping a Mr. Okie, who was the developer of waterproof water-dry sandpaper. I was working for Mr. Okie the early part of 1925.

Q. Now was 3M essentially interested in sandpaper in 1925 or in tapes? A. Sandpaper.

Q. It sort of branched out into tapes in '26? A. Starting about, to the best of my knowledge, about June, May or June of '25.

Q. And were you the one that, under the proper direction, initiated the tape end of the business? A. At the very beginning?

Q. Yes.

[Record pp. 1562-1564]

• • •

Q. That is you would take a piece of paper such as kraft paper, or the oiled paper or whatever papers came along, and you would make a hand spread of the adhesive that you were using at the time to see what would happen? A. Yes, sir.

Q. And what happened, happened, didn't it? A. Yes, sir.

Q. Now the hand spread that you put on those various papers, and that adhesive in those days was put on the papers in just the same way, that is, by either rolling it on with a rod such as you have spoken of, a stirrer, or with a knife? A. Yes, and once in a while a wringer roll.

Q. And when Guth brought in a couple of pieces of cellophane around 1929 you did the same thing with them, you took some adhesive that was currently being used on the masking tape and made a hand spread of that to see what would happen, didn't you? A. Yes, sir.

Q. And what happened, happened? A. Yes, sir.

Q. And you did not do anything different there except use different material as the backing than you had been doing before in connection with the other experiments that you carried on? A. Yes, sir.

Q. And as a result of that hand spread, when you evaluated it you found that the adhesive that you had spread on, which was the current standard adhesive for the masking tape, stuck to the back of the cellophane, didn't you? A. Yes, sir.

Q. And you found also that when you let it dry for a little while or stand a little while you could stick it on another piece of cellophane and it would pull off? A. Yes, sir.

Q. Just as the masking tape would pull off? A. Yes.

Statement of Minnesota's Counsel

[Record p. 2634]

"Mr. Haight: • • • Brandenberger showed that; he had cellophane • • •."

Direct Testimony of Paul Shalita, Technical's Vice-President and Expert Witness

[Record pp. 3088-3089]

"Q. Will you please explain what kind of a material Mr. Brandenberger is talking about. A. His film, the cellulosic film he is referring to is normal cellophane."

• • •

Technical's Exhibit 201-T

GERMANY

Published April 3, 1923
German Patent Office

Letters Patent
No. 372,925

Class 21 c Group 2
(G 50279 VIII/21 c[1])

Leo Grossmann, in Berlin-Mariendorf

Insulating tape of water-proof paper

Patented in Germany since February 10, 1920

The utilization of paper as insulating material is known; parchment and oil paper have also been suggested for this purpose.

Technical's Exhibit 201T

According to the present invention relating to the manufacture of insulating tape, crepe paper or smooth textured paper is used, coated on one or both sides with an insulating solution of pure rubber or a mixture of rubber and French resin or some other rubber mixture or the like. This solution is of low viscosity, remains permanently sticky and acts as an insulation.

When the paper has been coated on both sides with the rubber solution, an intermediate strip of paper or the like is interposed between the adhesive surfaces of the insulation tape which is coiled up, this intermediate strip being prepared in such a way that the adhesive substance will not stick to it and an easy unwinding of the insulating tape is made possible.

For example, paraffined paper or paper coated with a lacquer may be used as an intermediate strip.

Especially suitable for the production of paper insulating tape are waterproof papers of great tensile strength, made of bast fibers or, for example, corresponding oil paper or parchment paper.

As in the case of the cloth insulating tape it is important as well for paper insulating tape for similar use, that the substance which acts as an insulant and which the cloth or the paper has been coated with, remains permanently sticky, in case the insulating tape shall not be used immediately after the application of the adhesive substance and even before the solvent has evaporated, still in possession of its adhesive power, as it is done with an insulating tape, processed under another method.

In accordance with a further known process, the permanent adhesiveness of a paper insulating tape is achieved by adding adhesive substances such as honey or syrup to an asphalt mixture acting as an insulant.

In other processes, paper is provided with an oil coating. However, since such a coating cannot and is not supposed to retain a permanently adhesive effect, this product can-

not be utilized as an insulating tape of continuous adhesiveness.

There is another known process where paper or other fibrous materials are treated with an adhesive rubber solution. However, the rubber solution applied is so viscous that no penetration of the paper by the solution can occur.

Contrary to these procedures, the present case is characterized by the fact that solutions of low viscosity, consisting of pure rubber or a mixture of rubber and French resin or other rubber mixtures in benzol or the like are applied to one or both sides of either oil paper or parchment paper, a single application of these rubber solutions being sufficient.

When using paper as a base, the manufacture of a conventionally known fibrous insulating tape is technically not feasible since the strain of the paper caused by repeated coatings with rubber is too great, the adhesive force of the applied rubber substance combined with the pulling stress of the coating machine will result in the tearing apart of the paper base. In this invention, a thinly liquid and continuously adhesive solution of the above named substances is used for the production of the paper insulating tape. A single coating of the paper is sufficient here to attain a usable gummed paper insulating tape.

The following will serve as an example for the production method according to the invention:

Oil paper sheet, 1 meter wide, is conveyed through a solution of:

1 kg. "Ceara" rubber
0.1 kg. French resin
10 kg. Benzol of specific gravity 0.83

The paper being thus coated on both sides with the rubber solution.

Excess portion of the coating substance is removed by a scraping blade and the solvent is evaporated by running the coated paper over heated plates. As mentioned above, when coiling the tape into rolls, an intermediary strip of lacquered paper is used.

Patent Claim

Insulating tape of waterproof creped or smooth paper such as oil paper, parchment paper or the like, which is coated with an insulating rubber solution characterized by the fact that a thinly liquid solution of pure rubber or a mixture of rubber and French resin or another mixture of rubbers is used for the adhesive coating.

Redirect Testimony of Paul Shalita, Technical's Vice-President and Expert Witness

[Record pp. 3447-3448]

• • •

The Court: Now does this Exhibit 244 correspond generally to any of the formulations disclosed in the Drew patent?

The Witness: Only in the fact that it is a rubber solution, and the closest one to it is Example B [of Drew I and II].

The Court: B?

The Witness: B, which has two different rubber solutions mixed, one of plantation rubber and the other of the Mexican or wild rubber, which has natural resin in it. The plantation rubber has less natural resin. But they are both rubber solutions.

• • •

Cross-Examination of Hubert J. Tierney, Minnesota's Vice-President and Expert Witness

[Record pp. 469-470]

"Q. And in Example B there is no added resin other than that which is included in the Mexican or wild rubber; that is true, isn't it? A. Yes."

• • •

A. All rubber has some resin in it, doesn't it, all natural rubber? A. It is referred to as resin, yes."

• • •

Technical's Exhibit 189T

B/Fr.
R. 75,969 XII/47F
RADO

11 November 1933
To the
German Patent Office

Supplementing the belated opposition brief dated 13 March 1933 the following is herewith submitted for official consideration:

The French Letters Patent 433,999 already precludes per se the subject entirely, because it reveals an insulating band of non-fibrous cellulose skin with a rubber solution. In fact it is a completely analogous utilization, that means an adhesive tape which—after its application—will not be removed and on the other hand will stick forever to the covered area; this French insulating band operates exactly as desired by the applicant for his suggested tube or hose sealings.

The use of non-fibrous cellulose skins with rubber solutions for sealing purposes is otherwise generally known, as for example disclosed by the British Patent 126,347, Page 2, Line 16 and the following. In the same Letters Patent we find a description on Page 2, Line 23,24 where the application of insulating coatings of varnish or the like to cellulose skins is given.

• • •

Technical's Exhibit 1927

28 January 1936
To the German Patent Office

R. 76 554, Class 81c, Group 26
Rado

Acting on behalf of the firm Minnesota Mining and Mfg. Co., St. Paul, Minnesota, U.S.A., an opposition brief is herewith filed against the above stated patent application to reject the above patent application to its full extent.

In support the following is presented:

The present application relates to a sealing tape for sheetmetal containers where the bottom and lid part when united has been covered by a strip which is characterized by the fact that the joint between lid and bottom is covered by tape made of non-fibrous cellulose-skin, as generally known for packaging purposes, in conjunction with a conventional adhesive rubber-solution. As admitted in the main claim of the application the use of non fibrous cellulose skin and also the use of an adhesive rubber solution united with a non-fibrous cellulose skin is stated as conventionally known.

The manufacturing of adhesive tape from non-fibrous cellulose skin with an adhesive rubber-solution spread upon at least one side is indeed well known prior to the filing of the present application [of Rado in 1927]. The French Letters Patent No. 433,999 [Brandenberger] published in the year 1912 reveals quite evidently non-fibrous cellulose bases which are covered with a plastic adhesive substance, sticking and adhering without moistening. The adhesive substance may be formed by a rubber solution. It is therefore quite obvious that the French Letters Patent reveals a tape of non-fibrous cellulose skin which at least on one side is coated by an adhesive rubber solution. The only remaining characteristic of Claim 1 is given by the fact that the joint

Technical's Exhibit 192T

between lid and bottom of the container is covered by a tape made known by the French Letters Patent No. 433,999. Evidently there is no particular difficulty or problem involved to apply this already known adhesive tape to a sheet-metal container. This would indeed be a familiar operation for any person skilled in the art; the sealing of edges and joints touching each other is actually the general purpose of adhesive tapes. Hence no basis can be found in the main claim of the invention on hand which would justify a patent grant which means that the French Patent No. 433,999 definitely reveals adhesive cellulose tapes as suggested by the main claim of the present application.

In continuance of our arguments the decision of the Board of Appeals dated 12 January 1935 re Application Rado R.75 969 is referred to. In this rejected case R. 75 969 the applicant Rado had tried to obtain a patent for a sealing material for tubes, hoses or the like, where the base of the sealing material would be comprised of a non-fibrous cellulose skin, the latter coated with the conventional adhesive substance of rubber solution on one side only. Also in this case the sealing of tubes or hoses was known just as well as the sealing of the joint between the combined bottom and lid part of the sheetmetal packages as suggested by the application on hand. In the rejected application R.75 969 too was the statement that the then application as well as the present one suggested merely the substitution of the fibrous layer by a non-fibrous cellulose layer. The Board of Appeals reported in the older rejected application that the French Letters Patent 433,999, especially Page 1, Line 19 and the following, revealed the coating of cellulose derivative tapes with rubber solutions. According to the opinion of the Board of Appeals the then claimed material, that is a non-fibrous cellulose skin coated on at least one side with an adhesive rubber solution, had to be considered as conventionally known.

Technical's Exhibit 192T

Following the same procedure the Landgericht (a trial court) BERLIN (Germany) stated in decision [in favor of Minnesota] dated 14. December 1933 that adhesive tapes of non-fibrous cellulose skin, according to the French Letters Patent 433,999, had to be considered as already known. This decision closed a law-suit which had been set into motion by the applicant Rado against the presently opposing party [Minnesota] re the Petty Patents 1,270,433 and No. 1,271,211. The Landgericht (a trial court) BERLIN (Germany) had denied any protective suitability for both of the petty patents. It is to be noted at this point that the Petty Paent No. 1,270,430 was almost identical with the then application R. 75 969 whereas the Petty Patent 1,271,211 greatly conforms with the present application. The decision of the Landgericht (a trial court) BERLIN (Germany) has been affirmed by the Kammergericht (a Higher State Court of Prussia) Berlin (Germany) on 16 October 1935. This makes it very clear that the subject of Claim 1 of the present application cannot be considered either as new or as meritorious of a patent grant.

• • •

Technical's Exhibit 190T

B/Fr.

April 28, 1934

To
German Patent Office

R. 75,969 III/47f XI 3. 307/33
Rado
Belated Opposition Brief *Minnesota*

Supplementing the belated Opposition the following is warranted for official consideration:

The applicant attempts to prove the fact that his "Sealing Material" is not identical with the "Insulating Material" of the French Patent 433,999 and establishes his arguments by using the well known textbook of Lacquer and Varnish Industry by Seligmann and Zieke; the facts are, however, completely misrepresented by him. The mentioned publication merely states that "with complicated structures as the bodies of dynamoelectric machines etc." a substitute of shellac solutions by rubber solutions is impossible because the rubber layer will be softened and become sticky at slight increases of the temperatures.

The French patent however does not relate to the insulation of the mentioned encased—and therefore by heat especially endangered—"complicated structures" like dynamoelectric machines, where nowadays Bakelite is a favored use; said French patent is only concerned with the insulation of electrical cables or wires (notice, for example, figure No. 1 of the Letters Patent) that means the industrial product "Insulating Band", generally known and widely used by electricians in an ordinarily sticky form.

It is not evident how the applicant gets to his assertion that sticky insulating materials are not suitable for these purposes. The experience wih "Insulating Band" show us everyday that quite the opposite is true.

• • •

Technical's Exhibit 190T

Every handyman knows very well that insulating band does not merely serve electric insulation purposes but can generally be used for sticking and sealing of different kinds. It has been a custom since long before to seal boxes and tin cans against humidity and to store sensitive goods, photographic equipment and the like in a safe way.

The fact now is that the insulating material of the French Patent 433,999 is a sealing material identical with the subject of the present application, that means a material of cellulose skin with a rubber solution. In case the French product is not adhesive then the same will apply to the one presented by the applicant and vice versa.

• • •

It should be stated that in the application M 110,336 [Minnesota's German application corresponding to Drew I] parchment paper had also been named as a base for the continuously adhesive plastic substance. The substituting of the transparent parchment paper by the transparent cellulose skin [cellophane] can hardly be considered inventive."

• • •

Technical's Exhibit 199T

Dr. R. / Fr. — 2 March 1937

R 76,554 XII/81c
-10 B.311.36 — To the German Patent Office.

Rado. Opposition Minnesota . . .

This is to reply to the appeal of the applicant dated 3 December 1936 as follows:

The brief for the appeal seems to be unnecessarily lengthy. It does however not take into consideration the decision of the Patent Department dated 11 November 1936, which rejected the present application, nor the intermediate decision of the Patent Department dated 18 June 1936.

The asserted problem of the application seemingly refers to the selection of a tape for sealing of a metal container and the airtight and moisture-proof coverage thereof. The answer to this asserted problem is not only evident to every person skilled in the art but also to unskilled individuals familiar with older techniques.

The decisions of the Patent Department explain the state of technology very clearly and comprehensively. The sealing of containers, packages and the like by adhesive tapes is definitely known since long before as for example shown in the American Letters Patent No. 1,520,528 dated 23 December 1924. This American Letters Patent reveals plainly the use of an adhesive tape for sealing of containers' edges and joints and relates definitely to the desirability of an *airtight* cover along the joint between the lid and bottom part of said container.

The use of non-fibrous cellulose strips is well known for numerous purposes and in view of same, the French Letters Patent No. 433,999 is especially referred to, which has been reviewed in detail in the briefs of the court of the first

instance. This French Letters Patent [Brandenberger] reveals the use of a non-fibrous cellulose material as a base for the strip, also the use of an adhesive rubber substance on at least one surface of the strip; it shows further the fact that the strip or tape is disposed to be used in connection with metal items, that means wires or cables; hence it is to be deduced that a non-fibrous cellulose tape will adhere to metal items as cables or wires by means of an adhesive rubber substance. * * * The publication of this French Letters Patent presents therefore a non-fibrous cellulose tape with an adhesive rubber substance on one side of same, processed it so far to make it non-porous, and thus rendering it airtight and moisture proof. It is also evident that this tape will stick to metal items as for example cables or wires. It would surely be understood by a most unhandy person that such a strip could be applied to the edges of a metal container. The assertion of the applicant therefore fails to prove that an inventive effort would be required. Quite contrary it is the next reasonable step to be expected. After the tape being known itself—as admitted by the applicant in his own application, that non-fibrous cellulose bases and adhesive rubber substance are conventionally known—there cannot be anything inventive in the use of such a tape, whatever purpose it may serve; and definitely nothing inventive can be seen in the obvious use of the tape for the joining [of] parts of a metal container. This is merely the use of a known item in a very well known way.

The applicant did not take pains to show that the application of the known tape to a metal container includes any particular difficulties which had to be overcome; he necessarily did not have to discuss these difficulties because they are non-existent as far as the placing of the tape on the joining parts of a metal container are concerned. There is absolutely no unexpected or surprising technical progress in this matter. The results are such as to be expected from an average person.

* * *

Colloquy of Court and Minnesota's Counsel

[Record p. 2625]

The Court: Mr. Haight, apart from the question as to whether what is stated in 192-T, whether it constitutes an argument of counsel or a statement of fact, and whether it is an admission against interest, and if so, whether it is binding upon Minnesota—apart from those questions, isn't it a fair interpretation that there is an assertion that the application of an adhesive of a rubber solution on a non-fibrous cellulose skin was something that was known from the time of the Brandenberger patent?

Mr. Haight: Yes, sir, I think so.

The Court: And if that is true and demonstratively true, then, doesn't that dispose of your case?

• • •

Direct Testimony of Paul Shalita, Technical's Vice-President and Expert Witness

[Record pp. 2996-2997]

Q. Of what substance are and were dental film mounts made? A. At the time of this patent they were made of cellulose nitrate or celluloid film.

Q. Is cellulose nitrate film smooth? A. Yes.

Q. And non-fibrous? A. Yes, they are both smooth and non-fibrous.

Q. I will read the next paragraph:

> "The objects of my invention are to provide such a mount that will be easily manufactured, into which the film may be placed with the minimum of care, and which will hold the film securely against acci-

dental displacement, but which will permit of its removal. Other objects appear hereinafter.

"I attain these objects by constructing the mount with a window that will transmit light, around which window is a marginal portion coated with a slow-drying adhesive to which the margin of the negative will adhere by pressure, and around this margin is a centering frame within which the negative fits, thus insuring its proper location with respect to the adhesive and the window."

What do those two paragraphs disclose to you, Mr. Shalita? A. Hodgson is describing somewhat the construction of his product, which is this mount for holding the dental film negative and which has a window in it. Around the window is a marginal area of a pressure-sensitive adhesive which will hold the ultimate dental film negative; and it is held securely and yet is removable, much as a pressure-sensitive adhesive will act.

• • •

Technical's Exhibit 158T

[Kronstein Austrian Patent of 1928]

Class 396 *Published on 11 February 1929*

AUSTRIAN PATENT OFFICE

Letters Patent No. 112,237

Elektra-Lack-Werke, G.M.B.H.

(Electra Lacquer Works, Ltd.), System Dr. Kronstein, Karlsruhe i.B.

Process for the manufacture of electric insulating materials.

Date of application: 15 December 1927.

Priority for application in Germany claimed as of 2 July 1927.

Patent valid since: 15 August 1928.

The electrical art uses among other substances rubber nd linoxyn (il varnish) as insulating material, normally combined with other insulating materials such as paper, linen, silk and the like, which have a higher mechanical strength. This used to be preferably done in a method, where a solution of rubber or linoxyn was coated on the material of higher mechanical strength and dried thereafter. The latter had to be done by oven heating or by heated air in order to eliminate the solvent agent entirely and to create a dry solid layer this way.

The linoxyn method starts usually with insulating oil varnish as initial product. The formation of linoxyn in the first stage is started by heat on an underbase, such as silk, linen, paper or the like.

In this processing method the nature of underbase-fiber is very detrimentally affected by the heat, in that the natural durability decreases markedly. After a certain

period of time, so-called phenomena of decline will show up, and the insulating material will become decayed and finally even brittle.' Thereby the insulation will be weakened at first, and on the other hand it will gradually lose its power of resistance against the penetration by moisture.

These deficiencies will be overcome—according to this invention—by the fact, that an insulating substance, for example, rubber solution, synthetic resin solution, insulating varnish (oil varnishes such as linoxyn or zapon lacquer such as cellulose nitrate or cellulose acetate), insulating adhesive lacquer (synthetic resin) or the like, will be combined with a non-fibrous, so-called pure, mostly glycerol-containing, cellulose, for example, with viscose bodies rendered transparent by a glycerol-component; these cellulose materials are commercially traded under the trade mark Cellophane, Transparit, Gaudophil and similar names. The cellulose material per se is a very bad insulant. The experiments of the inventing party, however, resulted in the facts, that the combination of these cellulose materials with the above indicated insulating substances produced a non-fibrous material of an outstandingly high power of resistance against electricity, which will retain its qualities also for an indefinite period of time, which is on the other hand waterproof and stable even under high temperatures, whereby it becomes well suited for numerous purposes in the field of electrical techniques. The lack of susceptibility of the combined product against high temperatures creates the possibility to perform the unification of the cellulose material with the varnish even under higher temperatures without impairing the flexibility or power of resistance of the final product.

Whereas the conventionally known insulating materials of fibrous base plus varnish present a linoxyn-membrane, which favors the diffusion by gas and thereby lacks the quality of sufficiently protecting electrical machines against

moisture, humidity and acid vapors, the product of this invention is absolutely impermeable to gas and water. The product according to the processing method of the invention is furthermore absolutely oil-proof and can be industrially produced at considerably lower costs than in the methods used up to now. This can be related to the fact that the above mentioned cellulose material, as commercially available, is smoothly polished per se, where other raw materials such as silk, linen, paper make expensive operations necessary to obtain first of all a smooth surface. Smoothness, however, is an absolute necessity in view of dangerous point discharges.

The manufacture of the insulating material according to the invention may be completed in various methods of processing. For example, the insulating substance such as linoxyn, rubber or a rubber mixture may be coated on one side of the cellulose material, thereby obtaining an insulant or insulating tape of whatever adhesive power is desired, with a smooth, hard reverse side which is especially suited for low voltages. It is on the other hand possible to furnish this single coated material with a layer of the same or different substance on the opposite side, which operation would result in a type of product, the qualities of which could be optionally varied as compared with the insulant coated on one side. It would, for example, be possible to endow one side of the insulant with higher insulating effects than the other. It would be optional to take special requirements into account, such as mechanical qualities, power of resistance, self-induction or inductive capacity of the two layer, etc.: an insulating tape could furthermore be produced, which is coated by an adhesive substance on one side only, whereas the other side remains dry and non-adhesive and thereby possesses high insulating capacities.

Technical's Exhibit 158T

In the case of an insulation coated on both sides, the material may present an identical or varied thickness of the two layers.

Furthermore, one may manufacture from the non-fibrous cellulose material ready-made items such as insulating pipes or other insulator items, which will be processed to the final product, for example, by bonding through a liquid insulating material such as adhesive insulating varnish, synthetic resin solution or the like, or through any other method.

An insulating material of much higher potentiality will be achieved if the above indicated ready-made insulator items—comprising a one or double sided, varnished non-fibrous cellulose underbase material—will be produced by the adhesive bonding or by combining two or more layers. These products will then comprise numerous superimposed insulating layers, thereby furthering the power of resistance against electricity quite considerably.

It is, of course, also possible to use the non-fibrous cellulose only in the early stage of production of said ready-made insulator items and—after completion of their shaping into the desired form—to finish them toward a good insulating material by a coating with linoxyn (insulating oil varnish).

PATENT CLAIM:

1. Process for the production of electrical insulating material, characterized by the fact that non-fibrous cellulose, such as Cellophane, Transparit, Gaudophil and the like are coated with an insulating substance such as rubber solution, synthetic resin solation, insulating lacquer (oil varnish, such as linoxyn, or zapon lacquers, such as cellulose nitrate or cellulose acetate), insulating adhesive varnish (synthetic resins) or the like and will be dried afterwards.

Technical's Exhibit 158T

2. Process according to claim 1, characterized by the fact that non-fibrous cellulose will be coated on only one side with an insulating substance, whereas the other side remains uncoated or may be covered with another optio: al material, for example, with an adhesive substance.

3. Process according to claim 1, characterized by the fact, that the non-fibrous cellulose will be coated on both sides with an insulating substance, using an identical or different insulating substance for both sides.

4. Process according to claim 1, characterized by the fact that this process will be applied only after the items of non-fibrous cellulose have been shaped and combined into the desired insulator-type by adhesive bonding or other treatment.

5. Process according to claim 1, characterized by the fact, that this process will be applied only after the items—comprising here layers, insulated on one or both sides, of non-fibrous cellulose—have been shaped into the desired insulator-type.

6. Insulating material, comprising a non-fibrous cellulose, such as Cellophane, Gaudophil, Transparit, which is coated on one or both sides with an insulating substance such as rubber solution, synthetic resin solution, insulating lacquer (oil varnish such as linoxyn, or zapon lacquers, such as cellulose nitrate or cellulose acetate), insulating adhesive varnish (synthetic resins) or the like.

• • •

Pearson Article of 1918
Technical's Exhibit 206

Article—"Crude Rubber, Etc." 1631

14 Crude Rubber and Compounding Ingredients

A Textbook of Rubber Manufacture

By Henry Clemens Pearson, F. R. G. S.

Editor of "The India Rubber World"

Author of "What I Saw in the Tropics," "Rubber Tires," "The Rubber Country of the Amazon," "Rubber Machinery," etc. Third Edition.

New York: The India Rubber Publishing Company, 1918

Pearson's Crude Rubber and Compounding Ingredients, New York, Page 372.

Divisions of Rubber Manufacture

• • •

1632 *Article—"Crude Rubber, Etc."*

CEMENTS

Many rubber factories are run wholly on this line of work, the gums being mixed as in a general rubber business, put into solution in churns, and sold by the barrel for an infinite variety of purposes. Hundreds of different formulas are in use for cements intended for general and specific purposes. The leather shoe business, for instance, calls for a dozen or more special cements. The bicycle business has need for a great many grades of what are known as tire cements. Stickiness, waterproof qualities, durability, and cheapness in their goods are sought by all cement manufacturers, and, in order to secure these qualities, they demand skill in compounding in no way inferior to that shown in other lines of rubber work.

Pearson Article of 1918
Technical's Exhibit 206

Cement Compounds.

Pure-Gum Cement

Fine Para dissolved in benzol or naptha.

White (Curing).

Fine Para	20 pounds
Zinc oxide	12 pounds
Sulphur	2 pounds
Naphtha	25 gallons

Yellow (Curing).

Fine Para	20 pounds
Litharge	8 pounds
Zinc oxide	8 pounds
Sulphur	2 pounds
Naphtha	25 gallons

Leather Sole Channel No. I.

Fine Para (washed)	30 pounds
Rosin	5 pounds
Naphtha	40 gallons

Leather Sole Channel No. II.

Fine Para (washed)	10 pounds
Rosin	5 pounds
Naphtha	40 gallons

• • •

Direct Deposition Testimony of Hubert J. Tierney, Minnesota's Vice-President and Expert Witness Offered by Technical Tape

[Record p. 3508]

• • •

"Q. Was your answer to my question yes or no? A. If your question was with respect to whether or not rubber is stretchable or a rubber coating is stretchable, the answer is yes, a rubber coating is stretchable.

"Mr. Morris: That was not my question.

"Read the question, please.

"(Question read.)

"Mr. Morris: I think you can answer that yes or no.

"The Witness: The Kronstein patent does mention rubber solution coating of cellophane, and rubber is water-insoluble, and rubber is stretchable, so that in that respect the answer might be shortened to yes."

• • •

Recross-Examination of Paul Shalita, Technical's Vice-President and Expert Witness, and Colloquy of Counsel

[Record pp. 3496-3500]

• • •

Mr. Spille: Just so your demonstration is clear, are you using the 1955 version of Scotch Cellophane Tape?

Mr. Haight: No. I think it is 1954, Mr. Spille. Maybe it is 1953. This is one that I borrowed from one of the men in our office and have been carrying with me on lawsuits for a year or so, happened to have it down here. I find it convenient in the midst of trials.

Mr. Spille: I take it, then, you can't identify whether it is one that is supposed to be the new formula Scotch Brand Tape that sticks six times tighter? Yes?

Q. Now you see that, you just touch it to the dispenser and it lifts. Now I will hand the dispenser to you and ask you to use this—which is the best of yours—use this No. 2 of today, use this one that is double-coated here, whatever it is, the one that has several layers of rubber solution, No. 2 of today, and I want you first to just touch it against that little hand dispenser, sort of form a circle out of it as I did. A. May we wipe it off first?

Q. Oh, no, that isn't necessary. You don't need to wipe it.

Mr. Spille: You didn't pick it up when you touched it?

Mr. Haight: No, I touched it only a little, didn't get any grab on it. But it incidentally picked it up.

Q. If you like, wipe it, wipe it clean first. A. We can leave it.

Q. No, wipe it clean, as you wish, wipe it clean, first.

Q. Or we can clean it off with this tape? A. That's all right.

Q. Don't get your hand on it. Just touch it with the tape. A. All right.

Q. Good. Now, how much area contact do you have there?

Mr. Spille: Isn't that wonderful? We have picked up the roll of Scotch Brand adhesive tape in the dispenser, using the exhibit prepared in court which had a coating of plain rubber solution on originally.

Mr. Haight: That is correct.

Mr. Spille: Fine.

Q. How much area of a contact do you have there? A. The adhesive is not as smooth a coat as the tape. You can see that it is glossy.

Q. It is a triangle 2 inches high with a base of an inch and a half?

Mr. Spille: See if you can get it off.

The Court: Can't you cut off an inch strip?

The Witness: Yes, I can.

The Court: Without destroying the exhibit.

Mr. Spille: We necessarily will destroy it if we cut off a strip, your Honor.

The Court: Then don't.

The Witness: Let us see if I can jiggle it down so that there is approximately an inch and see if it still holds at that point, your Honor.

By Mr. Haight;

Q. Peel it off part way. A. All right.

Q. What just happened there?

Mr. Spille: He peeled part of it off.

Q. Well, show that to the Court and explain what happened there. A. The adhesive is adhering somewhat to the dispenser as well as to the cellophane.

Mr. Spille: And when it came off, when you peeled the sheet off, did it leave any residue of adhesive on the dispenser?

The Witness: It did not.

Mr. Spille: Let us have the record clear on that. O. K.

Q. What happened then with this particular spot on the exhibit? Was that adherent to the dispenser? A. It lifted away from the cellophane backing and then sprung back to the cellophane on releasing from the dispenser.

Q. Now would you say that was firmly united to the backing? A. Yes.

Q. And when you previously testified as to one or more of these exhibits that the adhesive was firmly united to the backing, you used "firmly united" in that sense, did you? A. I used it in the sense that it would not transfer to the smooth, non-fibrous surface to which it had been applied.

Q. All right. Now will you weigh this so that we will know how much weight we have.

Mr. Greenman: Surely.

Mr. Haight: Will you do that.

Mr. Greenman: Two ounces or slightly over.

Mr. Haight: Slightly over two ounces you said, is that correct?

Mr. Greenman: Yes.

• • •

Excerpts from Technical's Exhibit 37

[Disallowed Drew Pressure-Sensitive Tape Application of October 27, 1930]

[Page 1 of Exhibit 37]

• • •

"My invention relates to adhesives or coatings and more particularly to adhesives or coatings in sheet form, such as adhesive tapes and to the method of producing the same.

While my invention has a broad field of usefulness, in general it relates to certain improvements outlined in my prior applications, Serial Number 46,492 for Adhesive Sheeting, filed July 27th, 1925; Serial Number 182,892 for Adhesives in the Form of Sheets or the Like and Method of Making the Same, filed April 11th, 1927; Serial Number 281,104 for Adhesive Tape, filed May 28th, 1928, of which applications this present application is a continuation-in-part."

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[Page 4 of Exhibit 37]

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"In my present invention, it is contemplated by me among its objects to provide an adhesive article including a backing material and an adhesive coating or layer in which the desirable characteristics inherent in providing a limited adhesive surface predominates but in connection with more facile methods of manufacture to bring out the aforementioned desirable characteristics and to a larger measure augment the same not only enabling a continuous and more rapid method of manufacture but providing an article which is cheaper to manufacture and is susceptible of use with all classes of adhesive materials contemplated by me as set forth in my aforementioned applications • • •."

Excerpts from Technical's Exhibit 37

[Pages 5 and 6 of Exhibit 7]

* * *

"It is contemplated as an object of my invention to provide an adhesive article which not only has the inherent properties present in a composite of an adhesive upon a backing material formed with rugosities as by creping, toweling or corrugating, but one which lends itself more facilely to quantity production methods by utilizing flat webbed material to thereby provide an article which is amenable to use with every form of adhesive coating previously enumerated by me and which when utilized in connection with backing formed with rugosities by creping, toweling or corrugating as particularly claimed in my application, Serial Number 281,104 augments the properties of the materials thus made and additionally facilitates its manufacture.

In the preparation of an article, as contemplated by my invention, in providing an adhesive article it is contemplated by me to use a backing material in sheeted form preferably to [of] cellulosic material of which there may be enumerated woven fabrics, such as cheese cloths, felted or deposition products, such as paper, colloided or gelatinized products, such as may be made from cellulosic compounds as nitro-cellulose, acetyl cellulose, regenerated cellulose [cellophane], hydrated cellulose, vulcanized paper, parchmentized paper, which may all be classified as non-fibrous backing materials.

The backing materials above enumerated may be considered as unified, by reason of the process utilized for making a colloided or gelatinized product. However, where a fibrous backing material is used, unification may be obtained, by gelatinizing a fibrous sheet or saturating or sizing with agencies which unify the otherwise fibrous characteristics of the backing material employed. This unification is particularly applicable to cloth or paper backing materials and is preferably applied to paper products ren-

dering the same usable for my intended purpose, whereas otherwise they would be objectionable in that they laminated or split or peeled. In general, the unification of a cellulosic backing such as paper where this form of backing is employed may be practised in accordance with and by the materials disclosed in my application, Serial Number 182,893, which briefly comprises impregnating a cellulosic material such as paper, preferably of the unsized variety with gelatinous material of the glue type, flexibilized by hydroscopic agents such as glycerine, calcium chloride or both and other softening agents such as oils, gums, waxes and materials enumerated in my applications aforesaid and preferably insolubilized by tanning agents such as formaldehyde and similar insolubilizing agents. Additionally, unification may be obtained by treating to impregnate or to surface an otherwise bibulous fabric such as paper with drying oils, oxidized to insolubility, resinified products such as phenolic condensation products, urea resins, polyhydric resins, vulcanized rubber, haloginated rubber such as chlorinated rubber."

• • •

[Page 8 of Exhibit 37]

"The adhesive materials which I have previously mentioned may include the normally pressure sensitive or tacky adhesives of the type which is water soluble or water insoluble or those which are normally dry and include an agent which will respond readily to wetting, to render the adhesive with which it is intermixed, normally tacky and pressure sensitive and retain the same in this tacky or pressure sensitive condition, as described specifically in my application Serial Number 46,492. Adhesives may also be of the character which under ordinary atmospheric conditions are thermoplastic and respond to heat to be energized to adhesiveness for application by mere pressure or which under tropical atmospheric conditions may become adhesive."

• • •

Excerpts from Technical's Exhibit 37

[Page 11 of Exhibit 37]

• • •

"A rubber adhesive of the character contemplated by me may be made from a rubber compound and a tackiness augmenting agent preferably 10 lbs. plasticized plantation rubber, 2 lbs. Cumaron gum or resin and ½ lb. of zinc oxide pigment [Example A of Drew I and II]. Another example which may be used to form a water insoluble and tacky or pressure sensitive adhesive comprises a mixture as follows:—plantation rubber 2 lbs., Mexican or wild rubber high or natural resin 5 lbs., pigment 1 lb. [Example B of Drew I and II]."

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[Page 20 of Exhibit 37]

[Claim 4 as amended]

"4. A normally removable and reusable adhesive tape comprising a flat webbing of backing material, a normally tacky and pressure sensitive coating on one surface thereof, including portions thereof discontinuously arranged and transversely spaced striped films longitudinally of the length of the webbing, with interdisposed uncoated portions."

• • •

[Page 37 of Exhibit 37]

[Drew Statement of Dec. 7, 1931]

"The variation of applicant's article and the method disclosed as distinguished from Drew [Drew I] is more than a mere change in form, since this change which embodies substantially the inherent characteristics present in Drew, effects tremendous economies in manufacture and cost of material."

• • •

Excerpts from Technical's Exhibit 37

[Page 44 of Exhibit 37]

[Drew Statement of Nov. 1932]

"Referring to the action on the merits of the claims, it is believed that the real question involved may be simplified by consideration as a whole, of the art which forms a background to applicant's present invention. Applicant admits that the generic invention is to be found in applicant's own prior patent, 1760,820, which was co-pending with the present application, and that insofar as Drew 1760,820 is concerned, the only subjectmatter found in the invention which at all approaches applicant's invention is Drew's own patent, which was co-pending with the present application. Such common subjectmatter resides in the provision of a paper backing with a normally tacky, pressure sensitive adhesive coating, having removable characteristics. One phase of the article disclosed in the invention described and claimed in applicant's issued patent resides in the provision of a crepe backing, carrying a normally tacky, pressure sensitive and removable adhesive coating so that when the adhesive coating is applied to the job or the tape is formed into rolls or stacks, the adhesive surface will make a limited amount of contact to the job to which it's applied, or with the adjacent back surface of the layer of tape when formed into rolls or stacks. This relationship of the adhesive surface facilitates the removal of the tape, aside from other features, stressed in said aforementioned Drew patent.

When consideration is given to this inventive thought, and the disclosure made in the application under consideration, it will be found that applicant's development is an *outgrowth* of the invention in his own issued patent and has no relationship to the other art made of record by the Examiner."

Direct Testimony of Richard Drew, the Alleged Inventor of Drew II, called by Technical as Hostile Witness

[Record pp. 1582-1599]

• • •

Q. When the cellophane came in at Mr. Guth's request, you simply took strips off as you had taken pieces of kraft paper and of the parchmentized paper, of the kraft paper backing and the other things you spoke of, and spread the existent tape adhesive, the masking tape adhesive just as you had done in the other cases, is that right?

Mr. Haight: If the Court pleases, I want to object to that question because the placing of the words "at Mr. Guth's request," I think it is so placed in that question that perhaps the witness will understand that Mr. Guth was the person who ordered the cellophane from duPont, and by the time the question appears in print it may indicate that it was at Mr. Guth's request that he did certain things to the cellophane, so I object to the question.

Q. Now if you can answer that question, will you please answer it.

Mr. Morris: May the answer be permitted, your Honor, or the witness permitted to answer it?

The Court: Suppose you read that question again.

(Pending question read.)

Mr. Morris: I will withdraw it as it is susceptible of that interpretation.

The Court: Yes.

Mr. Morris: And I did not mean that.

Testimony of Richard Drew

Q. When the cellophane came in from duPont in June or July of 1929, you simply took the masking tape adhesive that you had around and that was being used on masking tape at that time and spread it on the cellophane as you had spread the same adhesive on different other kinds of backings such as kraft paper or the combination of kraft and parchmentized paper? A. Yes, sir.

Q. And the others? A. I used the same procedure.

The Court: Was it your practice to try out these different types of papers or material?

The Witness: Yes, sir.

The Court: And in doing that you just tried out some adhesive on it.

The Witness: Not just for the fun of it was I doing it.

The Court: Of course you were not there to entertain yourself.

The Witness: No.

The Court: You just were trying it out experimentally to see what would happen, is that it?

The Witness: I had a particular objective in mind in trying it.

The Court: You had never heard of cellophane tape before, so that your objective developed after you first saw the paper?

The Witness: Yes, it did, sir.

• • •

Q. And whatever came out of those hand spreads was due to the characteristics of the cellophane which duPont had produced, and the masking tape adhesive which had been used for some considerable time on your masking tape?

Mr. Haight: If the Court please, I object to that. Now we are getting into a point where counsel

knows well it is a combination. He asked the witness if what comes out of it is due to the duPont cellophane and the old adhesive used.

Well, if that appears from the witness's testimony here then it is not necessary to ask the question. If counsel is trying to get in an additional point, then it is certainly objectionable because it is leading the witness; it is suggesting that there wasn't anything more than the addition of a separate part, and he is getting into matters of patent law that the witness is not an expert on.

The Court: Well, Mr. Haight, I don't recognize that it is a matter of patent law in the question that has just been put to this witness.

Mr. Haight: Well, if the Court please—

The Court: It may well be that from the facts you will have some serious question of patent law, but what Mr. Morris, as I understand it, is trying to get from this witness has to do with the facts, what did he do.

Mr. Haight: Well, I think he has already got that.

The Court: And that part of your objection where you say it is leading, well, first of all, we are trying the case without a jury; and, secondly, Mr. Drew is an adverse witness or an unfriendly witness—well, I won't say he is unfriendly, but as a matter of law we may classify him as not being friendly, or I won't even go so far as that, but I will just say that he is a 3M man.

Mr. Haight: That is correct.

The Court: So I do not think that there can be any objection to the leading part of it. I think, though, that the question is perfectly proper from what the witness has already said up until this

time that he had never heard of it, or, as I understood this witness's testimony, he said that he had never heard of cellophane before, that he did not know anything about the properties of cellophane, and he then told us about the circumstances under which he used it in connection with exploring some other problem for some paper company.

He testified that it was in June or July, 1929, that he was doing work with this cellophane, or that was the first time he says that he saw the circumstances under which it would act, and when he saw it he did not do anything further. As a matter of fact, he did not know anything about its constituents, and he said that he was using it in an effort to help him solve another problem, and he was trying it out.

Now he did not add anything to the cellophane, he did not change the structure of the cellophane in order to make it more adaptable as a backing for tape. Maybe he did, but it has not come out in the evidence as yet. He said he took some piece of material produced by another company, another commercial company, and he put some adhesive on in an effort to solve a particular problem that some paper company asked him about, and he said he had some adhesive there that he was using on the masking tape and he applied one to the other when he was experimenting and he came out with this. Now, that is what his testimony, as far as I am concerned, so far indicates.

Mr. Morris: That is right. And I am asking him now, if your Honor please, whether when he put the adhesive on the cellophane backing, whether it was the waterproof cellophane or the normal cellophane, the resultant product had only the character-

istics that were given to it by the adhesive and by the cellophane which had been obtained from duPont. I think that is a perfectly proper question.

The Court: Well, we know that, don't we, from what the witness has done or what he has already testified to?

Mr. Morris: Your Honor, if I were to tell you that—well, I would just rather not tell you what else happened if I may.

The Court: Surely.

Mr. Morris: And will you permit the answer to this question, your Honor?

The Court: Yes.

Mr. Haight: I think there again, if the Court please—

The Court: I think this witness can certainly answer the question. He is a scientist or a chemist, rather, and while he does not have an academic degree, yet he is a man who has been in the laboratory for the greater part of his adult life and he can certainly tell us what he did in this connection.

Mr. Haight: You see, if the Court please, counsel has already drawn out of the witness what he did and now he is asking this witness a question in an attempt to get this witness's conclusion or opinion which, if he gets the answer, he would make it look as though this witness were an expert on combination claims and patent law.

Mr. Morris: I am not talking about any claims.

Mr. Haight: I know you have not, but if the question has any relevance, that can only be it, and this witness's conclusion or opinion as to whether some of the elements or the combination of elements, or whether it is the sum of the parts, or whether there is more or less, and so on, that is not a proper

question addressed to this witness because in substance what you are asking him is whether or not it was the sum of this and this, and in that way we are now getting into patent law, when such a question is asked of this witness.

The Court: There is no question of law propounded to this witness as yet, Mr. Haight.

Mr. Haight: Well, that question has an element of law in it.

The Court: Of course Mr. Morris might argue that it has certain legal consequences, but that will be his argument based upon facts that he elicits from this witness here. After all, he has a right to develop the facts.

Mr. Haight: He has already developed the facts. This question adds nothing except the opinion of the witness on matters that embrace patent law.

The Court: Don't you think that this witness is competent to give an opinion?

Mr. Haight: He certainly is, but not when he merges patent law in his question.

The Court: He is asked to give an opinion as to what he did and whether the results obtained were due to anything he did. Then, putting the two things together, whether or not he got something.

I will allow him to answer the question. I think he is competent to answer it.

Mr. Haight: I am not suggesting that he is not, your Honor.

The Court: Of course. And you know, Mr. Drew, when we use the word "competent" we do not use it in terms of mental competency; we are talking about legal competency.

Mr. Morris: Will you read the question, please.

(Pending question read by the reporter as follows:

"Q. And whatever came out of those hand spreads was due to the characteristics of the cellophane which duPont had produced, and the masking tape adhesive which had been used for some considerable time on your masking tape?") A. My answer is yes.

Q. So we have in the swatches that you produced in June or July 1929, by putting masking tape adhesive on the cellophane backing, simply an addition of the adhesive to the cellophane—

Mr. Haight: Just one moment.

Mr. Morris: Wait until I get through, please. I have not finished my question.

Mr. Haight: I thought that you were done, but I wanted to object before the witness answered.

The Court: Yes.

Mr. Haight: And I thought that you were done.

The Court: Mr. Drew, when you see Mr. Haight arise to make an objection, you will please just withhold your answer.

The Witness: Yes, sir.

Mr. Morris: Will you please read that part of the question that I had asked.

(Unfinished pending question read.)

Q. (continuing) —with the result that the cellophane retained its characteristics and the adhesive retained its characteristics?

Mr. Haight: Are you finished, Mr. Morris?

Mr. Morris: I am.

Mr. Haight: All right.

Now if the Court please, I object to that, and I think—

The Court: On the question of whether this witness can answer that question?

Mr. Haight: It is the impropriety of the question. And I can illustrate it with this much better that I could with the previous question asked. It has to do with the difference between what in patent law is called an aggregation and a combination. And there are cases that say that if you take two elements and add them together and each element performs its old function in the same old way, then you have an aggregation of elements, you do not have a true combination. However, if you have two elements and you put them together and you get a new article or a new result and if there is interaction and cooperation between the parts, then you have a patentable combination.

Now, your Honor—

The Court: Mr. Morris is trying to pursue it and find out is there an aggregation or is there a combination.

Mr. Haight: Yes, but the point is that this witness can well say the cellophane was still cellophane, the adhesive was still adhesive. But when you put a question of that type where it has inherent in it matters of patent law, the witness will answer the question as he understands it and giving an answer that is not the way Mr. Morris understands the answer. That is my point. We are getting now to questions of opinion.

The Court: Don't be concerned with Mr. Morris' understanding or inability to understand. He asked a question of this witness which this witness certainly is competent to answer, and if it is material to get the answer the answer will be immaterial. You will be able to argue one way from it and Mr. Morris will be able to argue another way from it. But we ought to have in the record what happened

after those two pieces were put together, was the physical property of either changed or did they each retain their original properties and characteristics. Is that the question, in substance, Mr. Morris?

Mr. Morris: In substance that is it, yes.

Mr. Haight: If that is the only question, that is immaterial; it is not relevant to the lawsuit, because you don't need to change the substance of an element or change its characteristics to have it part of a patentable combination. So if that is all there is to the question then it is completely immaterial.

The Court: Mr. Morris is developing a point. I don't think he should be called upon at this time to disclose what it is. I don't think that it is so remotely irrelevant to the controversy that he shouldn't be permitted to answer it. So I will overrule the objection.

Perhaps you had better read the question again to the witness. He may have forgotten it by now.

(Question read.)

A. The answer is yes, both retained their characteristics.

Q. And it might be likened to the mathematical proposition of two plus two equals four; is that right?

Mr. Haight: May it please the Court, that is thoroughly improper.

The Court: Yes.

The objection is sustained.

Q. The cellophane back performed the function, the waterproofing function that was inherent in the waterproof cellophane, didn't it? A. Yes, sir.

Q. And the masking tape adhesive performed the adhesive characteristics, such as tackiness and pressure-

sensitiveness, non-offsetting characteristics which were inherent in that particular adhesive at that time? A. Yes, sir.

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Cross-Examination of Hubert J. Tierney, Minnesota's Vice-President and Expert Witness and Colloquy of Counsel and Court

[Record pp. 745-747]

• • •

The Court: Your reference to the testimony on page 168, how do you relate the reference there to primer to any subject of waterproofing?

Mr. Morris: On page 5 of the patent [Drew II], your Honor, in answering your question, in the first column, beginning in line 46, it says:

> "In general, the primer layer is one which makes satisfactory bond with the regenerated cellulose backing material, or the gelatinized cellulosic material constituting such backing material, which may include a waterproofing layer of cellulosic compounds. Such primer may be a layer of a synthetic resin, such as one of the group of polyhydric-alcohol polybasic-acid resins, which makes excellent union with gelatinized cellulosic materials and with rubber. In the event that it is desired to wholly eliminate the above types of primer layer and waterproof the backing material of regenerated cellulose, where this is used, the waterproofing layer over the regenerated cellulose backing material is one which has affinity for the adhesive coating so that the adhesive coating makes better anchorage than would be the case if the regenerated cellulosic film were used alone. Such

waterproofing materials which have a primer function, may be a highly plasticized nitrocellulose or cellulose acetate"

and so forth.

The Court: Did the witness testify with respect to that portion of the patent on his direct examination?

Mr. Morris: Yes, he explained that portion of the patent.

Mr. Haight: The answer to that I believe, your Honor, is unquestionably no. The waterproofing, neither party here does it; it is not involved in the case, and the witness was not asked to explain that part of it.

* * *

Direct Testimony of Ralph C. Schilly, DuPont Chemist, called by Technical

[Record pp. 2280-2282, 2288]

The Court: You could not roll that tape up, could you?

The Witness: If we were to—

The Court: And put it back to the sheet.

The Witness: Well, yes. I am not going to try to say that we could not if we were producing tape, but understand that we were working with adhesive. We were not working with the idea of producing a tape. We were trying to seal or produce a satisfactory adhesive for regenerated cellulosic film; that is, the cellophane, plain transparent cellophane in order to satisfactorily seal that material around a product; namely, to produce a package, and we did not feel that the adhesive at that time were satisfactory enough for use on the cellophane.

Testimony of Ralph C. Schilly

Q. Are you referring to 1924? A. I am referring now to 1924. So that work was attempted on those. We contacted the various adhesive companies in the—known to be producing adhesives in the country.

The Court: Mr. Schilly, when was this when you say "we did it"? When was that.

The Witness: That was in 1924.

The Court: Were you with the company at that time?

The Witness: I was with the company at that time.

The Court: And who did the attempting to contact?

The Witness: I did. They all sent adhesives in and we tested those adhesives and we still felt that they won't be completely satisfactory for our purpose.

Q. May I ask you this. Did all these adhesives seal or bond two pieces of cellophane together when applied with the brush? A. Yes, they did.

Q. Were you also concerned with getting adhesives which when dry were very flexible? A. We were attempting to get as flexible an adhesive as we possibly could under all atmospheric conditions.

Q. Can you tell me the result of this contacting of adhesive manufacturers of these water-soluble adhesives and your own experimental work? Was it ultimately abandoned, or did it ultimately reach a point where you had adhesives which you recommended to the customers and the trade? A. We eventually obtained adhesives we considered adequate for the purpose of sealing plain transparent cellophane to itself or to other material. They weren't entirely, completely, as you would say, satisfactory

but they were the best that could be done with, and we had to use them.

• • •

[Record p. 2288]

Q. Now am I correct in my understanding that in all the adhesive work on water-soluble and on the solvent gum type adhesives, du Pont was seeking to make a general purpose adhesive or make it available for any and all purposes on cellophane? A. I wouldn't say that we were trying to make a general all-purpose adhesive. I believe what we were trying to do is to produce adhesives for a specific application, and if by luck we did produce an all-purpose adhesive that would have been fine.

• • •

Cross-Examination

[Record pp. 2312-2314]

The Court: Yes.

Now, after you left the du Pont Cellophane Company in the capacity of research chemist and went down to the Sales Division, what, if anything, did the du Pont Cellophane Company do with respect to exploring the adhesive field?

The Witness: I would say that from 1927 on all of our work, or practically all of our work was confined to the exploration of new adhesives for moistureproof cellophane, and that undoubtedly during that period 90 per cent of our work was on moistureproof cellophane adhesives.

Now, I say that relatively that it was 90 per cent, but the major part of the work on moistureproof cellophane was done from 1927.

The Court: And did you come up with anything worthwhile?

The Witness: Yes, we came up with some very satisfactory adhesives.

The Court: Normal cellophane?

The Witness: Well, we were working entirely on moistureproof cellophane and the adhesives that were eventually used were also of such character or kind that they were reasonably satisfactory for automatic fabrication of bags, and made even before the P.T. cellophane, the plain transparent or normal cellophane, and those were adhesives on a nitrocellulose base, namely, 46, 446 and 559 was produced, and that was as good for hand applications as any at that point, taking hold as fast as we would like, but it was easy to apply, and we got rid of reasonable amounts of the old difficulties.

Sealing of course was a problem up until the time that heat-sealing moistureproof cellophane came into being. You asked about plain transparent cellophane adhesives. A good share of the work from that point on was done by the manufacturers of adhesives outside the company. I refer there to National Starch, Union Paste, Arabol Manufacturing Company, and Manhattan, I think it is Manhattan Paste & Glue Company. They are located here in town.

The Court: As far as you know, did any of them come up with any pressure-sensitive adhesive?

The Witness: They weren't working on pressure-sensitive adhesives, your Honor, they were working on water-soluble adhesives, and some of those adhesives are still being used. Those were all water-soluble adhesives. They overcame some of the problems that we were originally confronted with gum embrittlement and excessive wrinkleing.

• • •

Cross-Examination

[Record pp. 2315-2316]

The Court: Well now, when you took the cellophane which had the backing of the adhesive on it and affixed it or applied it, say, to another piece of cellophane on to a

piece of glass or to another piece of paper and then you tried to remove the cellophane, did any of the adhesive--

The Witness: Now, your Honor, you are implying that I was doing some work for the production of a pressure-sensitive tape, are you not? I was not working on that. I was working in the production of an adhesive to seal a wrapper.

I don't say that if I applied it and dried it and attached it to a piece of cellophane that it wouldn't have stuck, it undoubtedly would have, and done a—I won't say a good job, I won't say it would do a bad job, because I don't know, you are asking me on something I can't honestly answer, because you are asking it concerning pressure-sensitive tape. I was producing an adhesive and I can only answer on the adhesive.

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Direct Testimony

[Record pp. 2292-2294]

Q. All right, sir. Did du Pont develop a complete heat-sealing moistureproof cellophane? A. Yes, sir.

Q. And offer it for sale? A. Yes, sir.

Q. Is such a type of cellophane being sold now? A. Yes, sir.

Q. Will you please describe to the Court the normal standard method of sealing such moistureproof cellophane together and [in] packaging? A. Our heat-sealing cellophane which we term MST cellophane can be heat-sealed merely by the application of heat and pressure, and the optimum temperature for sealing should be approximately 135 degrees Centigrade.

The Court: Is that heat-sealing method applied in the moistureproof cellophane?

The Witness: That is the heat-sealing moistureproof cellophane, the MST cellophane, yes, sir.

Testimony of Ralph C. Schilly

Q. Will you tell the Court approximately when heat-sealing cellophane or MST cellophane was offered for sale? A. I would say in about 1932.

Q. Now, prior to that time was there any type of moistureproof cellophane available on the market? A. Yes, sir, from—I believe that it came out commercially in 1927, the moistureproof cellophane, and then in addition to the heat-sealing moistureproof cellophane, the MST cellophane, we had the so-called MT grade cellophane.

Q. And how was the MT grade cellophane generally sealed? A. That was sealed depending there again on its end use.

MT cellophane was sealed over with adhesive or by heat alone, or by the use of solvents and heat.

Now, you will notice that I submitted in there "or heat alone."

Q. Yes. A. A lot of cigars were wrapped in MT cellophane and are still being wrapped in MT cellophane, because there you do not need a strong seal, otherwise you will break the cigar when you try to take it or remove it from its wrapping, so you want a seal that will hold the wrap sufficiently, and to hold the wrap—

Q. And no more? A. And no more, and that is exactly what it did and is still doing it.

• • •

Redirect Testimony

[Record pp. 2325-2329]

Q. Now, sir, during the period 1924, let us stop at 1952, when du Pont was initially selling plain transparent cellophane and later on MT cellophane and later MST cellophane, during that entire period did the sales of cellophane and the uses of cellophane in the packaging field by du Pont increase every year, or did you have dips? A. Not knowing the figures on sales, annual sales, it is rather difficult for me to answer that correctly, but I am going to give you

my opinion. I believe that there was an increase during that period from—you say 1924—

Q. Yes, sir. A. —through 1931.

Q. 1931. And the uses for these various types of cellophane during that period, did it increase or was there a contraction of uses, again in the packaging field? A. Generally speaking, I would say that there was an increase in the normal use of cellophane. It would—rather, it might change from PT to MT or MST. Particularly, I can give you an example of that where in the baking industry cookies, in particular, several New York City bakers were wrapping cookies in PT cellophane, back in the very early days, they went to MT cellophane and thence to MST cellophane, and I would say that the use by that specific baker increased as the years went along, particularly as we got into the MST grade of the cellophane.

The Court: What is the difference between MT and the MST?

The Witness: The MT was what we classed as non-heat-sealing and the MST was heat-sealing. Both were moistureproof or moisture vapor resistant.

Q. Do you recall what was the first major or mass use of moistureproof cellophane in the packaging field? A. The first mass use I believe was cigarettes.

Q. Now what kind of cellophane was used to wrap cigarette packages? A. MT cellophane.

Q. And how was that sealed, sir? A. That was sealed by one of two methods: A very dilute adhesive followed by an application of heat to the completed seal, or a solvent plasticizer mixture applied and followed by an application of heat.

Q. Now were those packages of cigarettes to the best of your knowledge commercially sealed with any form of tape? A. To the best of my knowledge, I don't recall any

cigarettes being sealed at that time with pressure-sensitive tape.

Q. Now did the cigarette industry, when moistureproof sealing transparent cellophane, namely, MST cellophane became available, did they switch over to that for wrapping cigarette packages? A. Not entirely, no, sir.

Q. All right. Let me ask you this: As of today, does the cigarette industry wrap the cigarette packages in MT cellophane or MST cellophane? A. Both.

Q. Both. Now on the M.S.T. cellophane, how are those packages of cigarettes sealed? A. They can be sealed by either just heat or, again, solvent plasticizer and heat. I would say that the latter is more in application than the former, simply because you can use a much lower heat application than you can with a direct heat alone.

Q. Now are the adhesives used in the cigarette industry today, and I will go back to 1928 and 1929, if I may, are those adhesives pressure-sensitive adhesives? A. On cigarettes, sir?

Q. Cigarettes. A. I would say no, they are not. But there, I can't answer that entirely. Plasticizers, solvent mixtures, no.

Q. Let me ask you this. Are they rubber-resin adhesives? A. I am going to answer that by saying I don't believe that they are, for this reason: I don't know whether they were or not. But I don't believe they would be a rubber-resin adhesive.

Q. Now in the research work which you have described by duPont on plain transparent and moistureproof cellophane, was there ever a point reached where duPont recommended a particular method of sealing which was to be universally applicable to all types of packages? A. Both moistureproof and plain transparent cellophane?

Q. Yes. A. I don't recall anything ever having come up to that extent, no, sir.

Cross-Examination of Minnesota's Witness Lake

Q. Is the majority of packages sealed in moistureproof cellophane today sealed with an adhesive or heat-sealed? A. I would say that the majority are heat-sealed.

• • •

Cross-Examination of Minnesota's Witness Edward C. Lake, a duPont Salesman

[Record pp. 995-997]

• • •

Q. Now, I am referring to page 6 of Plaintiff's Exhibit 99 and the little box marked 1931 which says:

> "First mass use was in wrapping cigarettes. In depression years, 1929-1932 film use rose five-fold, price was half."

Now, does that refresh your recollection, Mr. Lake, as to when the first real great or mass use of cellophane occurred and on what type of items? A. Well, there was a great growth during that time, during those years.

Q. When the cigarette manufacturers adopted the practice, if they did in 1931 or thereabouts, of wrapping cigarette packages in cellophane, that was a tremendous boost to the sales of cellophane by duPont, was it not? A. Yes, the same as cigars were, of course.

Q. And those packages of cigarettes or cigars, they were wrapped in moistureproof cellophane, were they not? A. Yes.

Q. In contrast to the plain or normal cellophane? A. That is right.

Q. Now, how were these packages of cigarettes sealed or cigars sealed when they were first used and came on the market? A. Well, let us confine it to one product.

Excerpt from Drew I

Q. All right, sir, cigarettes. A. My understanding is that they were sealed by means of heat and sometimes cellophane and—

Q. But not Scotch tape? A. No, not Scotch tape in that instance as I recall.

Q. And how were the cigars sealed? A. Well, the cigars were sealed sometimes in a tube that had been made with an adhesive, or in the case of the cigars an absolute type heat seal was not necessary.

Q. But the seam was heat-sealed, was it not? A. Well I think that it was heat-sealed, yes, or heat-applied.

Q. You don't know of any cigars or cigarette packages sold commercially that were wrapped in Scotch Brand Cellophane Tape, do you? A. Not that I know of.

• • •

Excerpt from Drew I

[p. 3, col 2, lines 116-130 through p. 4, col. 1, lines 1-24]

"Paper of the character above described may have directly applied to one surface thereof a water insoluble, non-drying adhesive, preferably energizable or active merely by the application of pressure, so-called a zinc oxide or rubber base adhesive for surgeon's or industrial tape. This adhesive material may be given as follows:

Example A

A rubber compound and tackiness augmenting agent in the form of a synthetic resin. Proportions suitable for ordinary temperate climates may comprise:

10 lbs. of plasticized, first quality plantation rubber, such as clear crepe or smoked sheets.

2 lbs. of cumaron gum or resin.

½ lb. of zinc oxide pigment.

Excerpt from Drew I

The cumaron gum or resin is preferably an artificial resinous material coming under the group name of cumaron and indene resins, which is the polymerization product of coal tar derivatives. The above ingredients are compounded on a rubber rolling mill to a plastic condition and then cut to desired body or consistency, using a rubber solvent such as benzol or a petroleum solvent, such as high test gasoline.

In lieu of a synthetic resin I may employ a low boiling point natural resin, e. g., Burgundy pitch or pine oil foots. Burgundy pitch is soluble in both alcohol and benzol.

Example B

2 lbs. of plantation rubber.

5 lbs. of Mexican or wild rubber, high in natural resin content.

1 lb. of zinc oxide pigment."

* * *

Excerpt from File History of Drew II

[p. 127 of Minnesota's Exhibit XXX]

• • •

"The rejected claims are as follows:

• • •

41. An adhesive sheet comprising a flexible non-fibrous cellulosic film backing having smooth lustrous surfaces and a water-insoluble adhesive coating firmly united to said backing, said adhesive coating being comprised of rubber and a compatible tack-producing resin compounded in proportions such that the adhesive coating is normally non-offsetting, tacky and pressure-sensitive.

Minnesota's Exhibit XXX

42. An adhesive sheet comprising a transparent flexible non-fibrous cellulosic film backing having smooth lustrous surfaces and a water-insoluble normally tacky and pressure-sensitive non-offsetting transparent rubber-resin type adhesive coating firmly united to said surface, the composite sheet being transparent.

• • •

Minnesota's Exhibit XXX

[pp. 203-204]

Appeal No. 30,643 VFM

IN THE UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte Richard Gurley Drew

Application for Patent filed February 18, 1938, Serial No. 191,259, a division of an application filed June 10, 1933, Serial No. 675,291. Adhesive Sheeting.

Mr. Paul Carpenter for applicant.

ON PETITION FOR RECONSIDERATION

This is a petition for reconsideration of our decision dated August 8, 1939.

We have carefully reconsidered this case but find no reason for allowing claims 32, 41, 44, 45, 52 and 58 as these

claims do not state invention over the Drew patent. They distinguish over the patent only in the use of a regenerated cellulose film or a non-fibrous film. This we regard as a mere choice of a different material and one which has already been used in films as shown in the British patent. The adhesive of the Drew patent is not transparent and we do not understand that the mere omission of zinc oxide from the adhesive of the Drew patent will make a satisfactory adhesive when using a regenerated cellulose film.

In view of all the facts in this case the rejections on the ground of multiplicity and indefiniteness are withdrawn.

The decision of the examiner is affirmed as to claims 32, 41, 44, 45, 52 and 58, but is reversed as to claims 42, 46, 49, 54 to 57, 59 and 60.

The petition is granted to the extent indicated.

EUGENE LANDERS
Examiner-in-Chief)
P. EDINBURG) Board
Examiner-in-Chief) of
F. J. PORTER) Appeals
Examiner-in-Chief)

September 13, 1939
Mr. Paul Carpenter,
140 S. Dearborn St.,
Chicago, Ill.

Direct Testimony of Paul Shalita, Technical's Vice-President and Expert Witness and Colloquy of Court and Counsel

[Record pp. 3023-3028]

• • •

Q. Mr. Shalita, will you turn over to Exhibit 206, which is an excerpt from an article "Crude Rubber and Compounding Ingredients," a textbook of rubber manufacture by Henry Clemens Pearson, and there he is apparently quoting from something published in "The India Rubber World," by the India Rubber Publishing Company, 1918, is that correct? A. That's correct.

Q. And going over to the next page of Exhibit 206, I am reading under the classification "Cements."

"Many rubber factories are run wholly on this line of work, the gums being mixed as in a general rubber business, put into solution in churns, and sold by the barrel for an infinite variety of purposes. Hundreds of different formulas are in use for cements intended for general and specific purposes. The leather shoe business, for instance, calls for a dozen or more special cements. The bicycle business has need for a great many grades of what are known as tire cements. Stickiness, waterproof qualities, durability and cheapness in their goods are sought by all cement manufacturers, and, in order to secure these qualities, they demand skill in compounding in no way inferior to that shown in other lines of rubber work."

And a little below that reading we have: "Cement compounds."

And I read the first one, which is entitled "Pure Gum Cement," and that is given as "Fine Para dissolved in benzol or naphtha."

Now what kind of a rubber cement is that, Mr. Shalita? A. This is plain cement or a solution of rubber solvent as it describes.

Q. Now look at the second column under "Leather Sole Channel," and under that No. II I read the formula: "Fine

Para (washed)" and underneath: "Rosin, 5 pounds; Naphtha, 40 gallons."

Now the formula I have just read, does that disclose a pressure-sensitive rubber-resin adhesive to you? A. Yes.

Q. What are the proportions of rubber to resin in this case? A. Well, two parts of rubber to one of resin.

Q. All right. Is that adhesive—

The Court: How did you get that formula?

The Witness: Two to one it is.

Mr. Spille: Ten to five.

The Witness: Double the quantity of rubber to resin.

The Court: It is thirty to five in No. 1, isn't it?

The Witness: No. We were looking at No. 2.

The Court: Oh, No. 2, excuse me.

Mr. Spille: Two to one rubber and resin.

The Court: All right.

Mr. Spille: And that is dissolved in naphtha, is that correct?

The Witness: Yes.

Mr. Spille: Now, your Honor, I propose to go through, starting with this disclosure of 1918, to show what type of pressure-sensitive adhesives were known. I am going through a host of patents to buttress that, and then we will take up the combination of these adhesives on various backing materials.

The Court: Is that material in this case?

Mr. Spille: Yes, your Honor.

The Court: Well, as I understand it, it is not claimed that there is any invention in the adhesive, so why is it necessary to go into the prior art?

Mr. Spille: Well, we have been unable to find out from opposing counsel when they make their statement that the adhesive was known, we can't find out

which adhesive they are talking about; is it Example A, B, C, D or E?

The Court: Every adhesive. They don't claim that they invented any of them in Examples A, B, C, D and E.

Mr. Spille: Then I take it that it is conceded that there is no novelty whatsoever in any of the examples A, B, C, D or E in the Drew patent.

The Court: You had better ask counsel that.

Mr. Spille: Is that conceded?

Mr. Haight: It is conceded that you were suing on that.

Mr. Spille: No, let us not talk about what we are suing on.

Are you conceding that Examples A, B, C. D and E in the Drew patent in suit are old, or that any of them are new?

Mr. Haight: Well, let us say as to Example A and Example B, they were disclosed before this application. I do not know of any disclosure of C, D and E.

Mr. Spille: All right.

Mr. Haight: You just referred to one disclosure of the two-to-one rubber to resin, which was substantially Formula C.

Mr. Spille: No, substantially Formula E, is it not? Formula C is cumarone gum, and this is resin.

Mr. Haight: Well, of course, those two are very similar, too, but the point is that we did not claim any invention in the specific adhesive, and that specific adhesive.

. . .

Deposition Testimony of a Minnesota Sales Manager, Albert S. Drew, called by Technical as Hostile Witness

[Record pp. 2889-2945]

Mr. Spille: Your Honor, if I may now say that I propose to read into the record parts of the deposition of Albert S. Drew, Jr., and I may call attention to the fact that the deposition of Mr. Drew was taken on two different days, the first day was March 26, 1954, and it was resumed and concluded on May 17, 1954 after the witness had been instructed by counsel, Mr. Kinney, not to answer certain questions, whereupon I made a motion in federal court in Boston before Judge McCartey and got a ruling and proceeded.

Starting at page 3:

"Q. Will you state your full name, please. A. Albert S. Drew.

"Q. And your residence? A. 338 South Avenue, Weston, Mass.

"Q. How old are you, Mr. Drew? A. 60.

"Q. Are you testifying voluntarily or pursuant to a subpoena? A. Subpoena.

"Q. Are you an employee of Minnesota Mining & Manufacturing Company? A. Yes, sir.

"Q. How long have you worked for them? A. 25 years, less one month.

"Q. What position do you occupy with Minnesota Mining & Manufacturing Company? A. Business sales manager, and in the tape department, in the industrial trades division. It sounds like a long title.

"Q. Can we boil it down a little bit? What are your duties? A. In charge of sales, I guess, in New England, what we call our New England division, for that type of tape.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. Industrial pressure sensitive tapes? A. That is right."

Then the witness continues after the colloquy that follows:

"Our division is called Industrial Trades Division.

"Q. Does that mean you are in charge in New England of sales of pressure sensitive tape made by 3M Company to wholesalers who are distributors, who are jobbers, whose customers in turn are plants and factories? Is that a fair statement? A. I think it is, yes, sir.

"Q. In other words, you do not supervise the sales of Minnesota tape to jobbers or customers who ultimately sell to small retail stores such as Woolworth's or corner drug stores? A. No, I have very little to do with that.

"Q. How many salesmen do you supervise, Mr. Drew, at the present time? A. Eight.

• • •

"Q. Can you name the salesmen who presently are under your direction? A. I can by referring to a list.

"Q. Well, I will pick out the names. This will be a little leading, but you know what I am after. Is one of your salesmen named Wiggins? A. That is right.

"Q. Is another of your salesmen named Shepardson? A. Right.

"Q. Is his first name Dan or Daniel? A. Dan. D. B. are his initials.

"Q. D. B. Shepardson? A. Yes.

"Q. Is another of your salesmen named Niles? A. Yes.

"Q. What is his first name, do you recall? A. May I refer—

"Q. Surely. A. His name is Bud. Seymour, I think it is. Just a minute. S. M. Niles. Seymour Niles.

"Q. Are you commonly known to the trade as Al Drew? A. That's right.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. How long have you worked as Division Sales Manager, industrial, in New England, for Minnesota Mining? A. The Boston Branch was broken away from New York in 1945. I had the responsibility of both retail and what is now known as Industrial Trades Division. That responsibility was split two to three years ago, as a guess, to the best of my memory.

"Q. Well, since at least 1945 you supervised industrial sales in the New England area for 3M, is that correct? A. Right.

"Q. Incidentally, you are related to Richard Gurley Drew in any way? A. Yes, he's my brother.

"Q. And he is the gentleman's name who appears as the inventor on the patent we call the cellophane tape patent? A. That's my understanding. I don't know anything about it, sir.

"Q. Are you in a policy-making position for Minnesota Mining & Manufacturing Company? A. No, sir.

"Q. Do you carry out policy transmitted to you through the chain of command? A. To the best of my ability.

"Q. And in that chain of command your immediate contact is Mr. Bennison? A. Right.

"Q. And do you know who directs Mr. Bennison's activities, or supervises them? A. Recently they have appointed a general sales manager in St. Paul, the home office. E. W. Decker.

"Q. Who preceded Mr. Decker? A. Mr. W. E. Zimmerman, who is now general manager of the division.

"Q. And do you know who preceded Mr. Zimmerman? A. As I remember it, that was the responsibility then of a Mr. C. C. Smith, who had the responsibility of both divisions of tape sales.

"Q. In other words, all these gentlemen, Mr. Decker, Mr. Zimmerman and Mr. Smith would occupy a position which you might call, for want of a better word, general sales manager—A. Right.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. For the entire company? A. I think I better ask you to repeat that."

The question was read back and the witness said: "Right."

Then the witness interjected—I am skipping a little colloquy—

"No, these gentlemen are lmited to tape."

Continuing on page 8:

"Q. Who would be above the various gentlemen you just named, in other words, this general sales manager's position? A. Mr. L. F. Weyand; he is executive vice-president."

I am skipping a part now.

"Q. Do you know a Mr. Lloyd Arnold? A. Yes, I know him.

"Q. When did you last see him? A. As he walked out this door.

"Q. You were not present when Mr. Arnold testified, were you? A. No, sir.

"Q. Did you confer with Mr. Kinney after Mr. Arnold left? A. Very, very possibly."

I am skipping several pages. I am on page 10 now:

"Q. Pardon me. I am a little at a loss on this retail business. Do you know the name of this salesman who worked in the Pawtucket area for Minnesota Mining in 1953, salesman or salesmen? A. To be sure, I know of only one, that's J. B. Wiggins, but I am quite sure there were others, but not in my division.

"Q. Is he also known as Jack Wiggins? A. Right.

"Q. How old a man is Mr. Wiggins approximately? A. Approximately 40 years old.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. Has he been with Minnesota Mining—A. Approximately eight or nine years.

"Q. Eight or nine years. All right. In 1953 was Minnesota Mining & Manufacturing Company selling pressure sensitive tape to Lloyd's Office Supply in Pawtucket? A. May I refer to a note?

"Q. Surely. A. Yes, sir.

"Q. Do you know when Minnesota Mining & Manufacturing Company commenced to sell pressure sensitive tape to Lloyd's Office Supply Company? A. No, I don't think I can answer that. I don't know. My memorandum shows that the first sales we have in our records in Boston were 1950.

"Q. 1950 to Lloyd's Office Supply? A. A memorandum given me, and I am referring now to the record of the Industrial Trade Division."

Then we had some colloquy off the record. I am resuming and I am skipping, on page 11:

"Q. Does the Minnesota Mining & Manufacturing Company now sell pressure sensitive tape to Lloyd's Office Supply? A. No, sir, not to my knowledge.

"Q. When did they stop or when did Minnesota stop? A. Approximately the latter part of July or first part of August 1953.

"Q. Do you know the circumstances under which such sales ceased?"

Then we had several objections by Mr. Kinney. In fact he had a continuing objection to this whole examination. I resumed the questioning. The last question was read back.

"Q. That is sales to Lloyd's Office Supply. A. I don't know what the conversation was between Mr. Wiggins and Mr. Lloyd."

Apparently he means Mr. Arnold.

"A. I know approximately what the conversation was between myself and Jack Wiggins.

"Q. You do know, apparently, that there was a conversation between Mr. Wiggins and Mr. Lloyd Arnold in July 1953? A. Yes, sir.

"Q. Relative to Lloyd's Office Supply continuing to buy 'Scotch' brand pressure sensitive tape? A. Right.

"Q. Do you know whether there was any altercation between Mr. Arnold and Mr. Wiggins on that subject? A. If there was, there was no knowledge of it to me. I have no knowledge of it.

"Q. You have no knowledge of it. Did Mr. Arnold in the latter part of July or August 1953 call you on the telephone at Newton Center? A. As I remember it, he did.

"Q. Do you recall the conversation? A. No, only it was pertaining to his removal from our list of distributors.

"Q. Then the Minnesota Mining & Manufacturing Company did remove Lloyd's Office Supply as an authorized distributor of 'Scotch' brade pressure sensitive tape? A. That is right.

"Q. Is that correct? A. That's correct.

"Q. And that occurred in August 1953? A. Yes.

"Q. Has Minnesota Mining & Manufacturing Company, since August 1953, sold pressure sensitive tape to Lloyd's Office Supply? A. Not to my knowledge. Not in my division.

"Q. Is the policy of Minnesota Mining & Manufacturing Company not to sell to Mr. Lloyd Arnold? A. Not until he is reinstated as a distributor.

"Q. I see. Do you know what the Minnesota Mining policy is regarding distributors or jobbers in the industrial field? A. In a general way. There are quite a few conditions in there.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. Has the policy changed in any way in the last two years? A. There has been a slight—there has been a change, yes.

"Q. Do you know what the change is? A. Yes, sir.

"Q. Can you tell us? A. We now have a policy—"

Then there was an interruption by Mr. Kinney.

Mr. Haight: May it please the Court, that was an objection that was then stated.

Mr. Spille: Surely.

Mr. Haight: On the ground that Mr. Drew was not in a policy-making position.

Mr. Spille: Well, let us read it in, if you want.

Mr. Haight: I think perhaps that is the easy way.

Mr. Spille: After Mr. Drew answered, "We now have a policy—

"Mr. Kinney: Let me interpose this objection, Mr. Spille. I think you understand from what Mr. Drew has already said, he does not make policy.

"Mr. Spille: No, I am simply examining him on his knowledge.

"Mr. Kinney: If there is anything critical of what Minnesota Mining & Manufacturing Company's policy is, this witness is not the right one to get that information from.

"Mr. Spille: I assume there is a possibility of that. I simply asked if he knew what the policy was.

"Mr. Kinney: What his understanding was of the policy.

"Mr. Spille: That is right, and we must take up later the question of how correct or authoritative his understanding may be."

I am resuming the questioning:

"Q. Can you tell us what that policy is, or what your version of it is? Let's take 1950 as a base year. What was

the policy of Minnesota Mining & Manufacturing Company with regard to distributors and jobbers handling or about to handle pressure sensitive adhesive tape? A. Well, they had to meet certain requirements. They had to have an office. I am reciting this from memory.

"Q. Yes. A. They had to have a warehouse. They have to have one salesman over and beyond the owner or manager, and, of course, always essential, being able to pay their bills. We also wanted to know what field of endeavor they were working in, that is, what class of customers they were calling on."

Now I am skipping the part I asked about identification of another salesman.

"Q. Do you have an assistant named Al Hill? A. Yes, sir.

"Q. What is his first name, please? A. I don't know. A. R. Hill. Allen, I believe, but I am not sure.

"Q. Allen or Allan? A. I don't think I better try to answer that.

"Q. How long has he been your assistant? A. Approximately three years.

"Q. Referring back to this policy, as I understand it in 1950, a jobber in the industrial field for 3M had to have a warehouse, an office, and at least one salesman besides the owner, and should pay his bills satisfactorily, is that correct? A. There were things over and beyond that.

"Q. Can you tell me anything of significance? A. That's why I wondered if I had skipped it.

"Q. Yes, please continue."

And we had an interruption from Mr. Kinney. He wanted to know the materiality. And after some colloquy on page 16 Mr. Kinney said: "Then the witness stands directed not to answer the question."

On page 17 I asked this question:

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. In 1951, for example, need an authorized jobber have a warehouse, an office and at least one extra salesman, and pay his bills with reasonable promptness?

"Mr. Kinney: I object to that question unless some relevancy for it appears, and I instruct the witness not to answer."

I continued:

"Q. You refuse to answer. In 1952 in order for a jobber or distributor to be qualified to handle 3M pressure-sensitive tapes, was it sufficient if he had a warehouse, an office, at least one extra salesman, and pay his bills promptly?"

Then we have colloquy on page 18. Mr. Kinney objected to the question and directed the witness not to answer.

I asked the same question regarding 1953, then the same question up to that time in 1954, and the same instruction at all times.

On page 18 we brought back the subject of the conversation with Mr. Arnold.

On page 19. I am resuming reading:

"Q. You think it is. Now in 1953 do you know what the facilities of Lloyd's Office Supply Company were? In other words, did you know anything about their physical setup? A. Only as I got it from Jack Wiggins.

"Q. Did Mr. Wiggins inform you it was a satisfactory distributor? A. To my knowledge, yes.

"Q. In 1953? A. Yes. To the best of my memory.

"Q. But later in 1953 Minnesota Mining refused to sell to Lloyd's Office Supply any further, is that correct?

"Mr. Kinney: You mean under any conditions?

"Mr. Spille: He can answer.

"The Witness: May I have the question read?"

And it was read.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"A. You mean following my knowledge of his physical setup?

"Q. Following your knowledge of his physical setup. A. That's right.

"Q. They refused after you learned what the physical setup was? A. That's right.

"Q. And how did you learn about the physical setup? A. I think it was casual conversation or more business conversation between myself and Mr. Wiggin.

"Q. And when did that occur? A. I don't know, sir. I don't know when that changed. As I remember it, when they first went into the business, they were operating from a house with a garage as a warehouse. That is as I remember it, but I don't know the place.

"Q. And that was in 1953? A. No, I don't think so. I think that was previous to 1953.

"Q. But in 1953 the physical setup of Lloyd's Office Supply was satisfactory for him to be treated or regarded as a jobber and distributor, is that correct? A. It was so reported to me.

"Q. By Mr. Wiggins? A. Yes, sir."

> And Mr. Kinney wanted to know what the physical set up was. I won't read that. We had some discussion.
>
> On page 21 I said: "Does he pay bills? That is physical setup.
>
> 'The Witness: I can't remember whether we ever had notice from our Credit Department in our headquarters office that he was delinquent.

"Q. So to the best of your knowledge, his payment record was satisfactory? A. Right.

"Q. I am referring to Lloyd Arnold. So sometime in 1953, Mr. Wiggins, your salesman under you, had reported that Lloyd's Office Supply was a satisfactory prospect as

a distributor or jobber for 3M tape? A. I would like that repeated."

The question was read, and Mr. Kinney says:

"You are asking a question. You are not summarizing what he says."

And I said: "That is a question to be answered yes or no.

"Q. No, I am only interested in what Mr. Wiggins had reported to you in 1953."

And we had colloquy off the record.

On page 22 the witness stated:

'As I remember it, Mr. Wiggins reported to me that Mr. Lloyd Arnold's interest in our product was on the decline."

I am skipping a part.

"Q. All right, don't guess. We don't want guesswork. Let me see if I can refresh your memory. Was it before or after Minnesota Mining declined to sell any more pressure-sensitive adhesive tape to Lloyd's Office Supply? A. It was before.

"Q. Before. Did Mr. Wiggins indicate why he believed or knew that Mr. Arnold's interest in 3M product had declined?"

Then we had more argument on the record and Mr. Kinney instructed the witness not to answer.

• • •

Mr. Spille: Now we are on the subject of whether Mr. Wiggins indicated or didn't indicate why Mr. Arnold's interest had apparently declined. I am reading from the bottom of page 23:

Testimony of a Minnesota Sales Manager, Albert S. Drew

"The Witness: He probably indicated it. We talk over, naturally, our various accounts and our various distributors."

And I resuming:

"Q. What was the indication that you recall that Mr. Wiggins gave you on that subject? A. That he wasn't active in—

"Mr. Kinney: I object to the question and instruct the witness not to answer it.

"Q. You refuse to answer, Mr. Drew? A. I am so instructed.

"Q. Did Mr. Wiggins tell you that Lloyd's Office Supply was now carrying, and for some time had been carrying 'Tuck' Brand tape or the pressure-sensitive tape made by Technical Tape Corporation? A. Are you referring to a particular conversation?

"Q. At any time. A. Yes, he made it known to me in general.

"Q. When did he make it known to you? A. From memory, sometime probably in 1952, possibly 1951. It wasn't unusual, so I don't remember the date.

"Q. Could it have been 1953? A. It could have been in 1953, and that is a conversation that followed conversations in 1952."

After he indicated he was present at the Trachtenberg deposition that morning, I asked this question:

"Q. Has Minnesota Mining & Manufacturing Company now in force an exclusive dealer policy regarding pressure-sensitive tape?

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Mr. Kinney: I don't believe I understand that question."

And it was read back.

"Mr. Kinney: I object to it because I don't understand it.

"Q. I will ask the witness, do you understand the question? A. I think I know what you are asking me, but I—

"Q. My question is, do you understand the question. A. I don't believe I do well enough to give a definite answer.

"Q. I will rephrase it. Do you know whether or not it is now the policy of Minnesota Mining & Manufacturing Company, in selling pressure-sensitive adhesive tape to jobbers and distributors in the industrial field, to expect jobbers and distributors to sell only Minnesota Mining & Manufacturing Company tape? Do you know? A. Do I know whether that condition exists?

"Q. Yes, sir.

"Mr. Kinney: The question is does he know whether there is a policy in that regard. I suppose you want a yes or no answer on it.

"Mr. Spille: Yes. Read the question.

"Mr. Kinney: Do you know?

"(Question read.)

"A. That policy does not apply to all jobbers.

"Q. So you do have a policy of requiring some jobbers to carry only Minnesota Mining & Manufacturing Company tape, is that correct?

"Mr. Kinney: I object to that.

"Mr. Spille: I think he volunteered it. You did not object to my question. He said the policy applies to some jobbers.

"Mr. Kinney: If the witness understands the question, he can answer it.

"(Question read.)

"A. I don't think I personally would call it a policy.

"Q. All right, but is it true—A. I would say it is an agreement.

"Q. Is it true that Minnesota Mining & Manufacturing Company sells to some jobbers and distributors who have agreed not to sell competitive pressure-sensitive tape?

"Mr. Kinney: I object to that question. I object to the form of the question and instruct the witness not to answer it."

And we have the usual argument. Mr. Kinney said: "The objection and instruction stands."

And I announced I was going to have a ruling on that question.

On page 27, I am resuming the questioning:

"Q. Did you know that Minnesota Mining & Manufacturing Company was selling pressure-sensitive adhesive tape to Edwards Paper Company in Roxbury? A. Did I know that?"

"Q. Yes. A. Yes, I did."

I am skipping over to page 28, a lot of discussion off the record.

"Q. In other words, when a new account comes in, you are informed of it, shall we say, within a week or so? A. Are we talking about the consumers or the distributors?

"Q. Distributor or jobber. A. Yes, I am.

"Q. So it is highly probable that when Edwards Paper Company began to buy 'Scotch' brand pressure-sensitive adhesive tape you knew about it within a week of the start? A. That's right.

"Q. Did you approve? A. Yes.

"Q. Did you know at the time that Edwards Paper Company was also selling pressure-sensitive adhesive tape made by Technical Tape Corporation? A. No, sir.

"Q. When did you find that out, assuming you did?

"Mr. Kinney: That is if he knows.

"Mr. Spille: If he knows. If he says he doesn't know, he doesn't know.

"A. I don't think I remember well enough to try to testify.

"Q. Does Minnesota Mining & Manufacturing Company still sell pressure-sensitive adhesive tape to Edwards Paper Company? A. Not to my knowledge."

On page 29, I am skipping:

"Q. Do you know under what circumstances Minnesota Mining & Manufacturing Company declined to sell any more 'Scotch' brand pressure-sensitive adhesive tape to Edwards Paper Company?

"Mr. Kinney: I object to the question.

"Mr. Spille: I just asked him if he knows.

"Mr. Kinney: It presumes something which I don't think is established by your testimony here."

And we had an argument as usual.

Mr. Kinney finally says he would like me to revise the form of the question.

On page 30 I say:

"Q. Does Minnesota Mining & Manufacturing Company decline or refuse to sell 'Scotch' brand pressure-sensitive adhesive tape to Edwards Paper Company? A. At the present time, yes.

"Q. When did you first stop or refuse, do you know? A. Sometime I think the first part of '53.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. Assuming that some information was transmitted from 3M to Mr. Trachtenberg of Edwards Paper Company, that Minnesota Mining & Manufacturing Company declined to sell him any further, do you know who transmitted the message? A. R. H. Burhoe.

"Q. By personal call or by telephone? A. I don't know.

"Q. Did you instruct Mr. Burhoe to get in touch with Mr. Trachtenberg of Edwards Paper Company to do this? A. Yes, sir.

"Q. So what Mr. Burhoe said was directly at your instruction? A. I don't know what he said.

"Q. But assuming that Mr. Burhoe told Mr. Trachtenberg that 3M would not sell him any more, that that had your complete approval? A. Right.

"Q. Do you decide on your own initiative which jobbers are dropped and which are selected to carry pressure-sensitive adhesive tape?"

And it was indicated it was as of the present time.

"A. No, sir.

"Q. Did you at any one time ever have that authority? A. Yes, sir.

"Q. When did you have that authority? When did it cease? Let's put it that way. A. Approximately sometime during the year 1953, as I remember.

"Q. Can you tell us how that termination of your former authority was transmitted to you? Was it by letter or by telephone?

"Mr. Kinney: I think that is irrelevant and I object to the question, and instruct the witness not to answer."

I said I was going to insist on an answer.

"Q. Were you instructed by higher management to stop deciding to take on or drop distributors or jobbers?

"Mr. Kinney: I object to the question and instruct the witness not to answer."

Page 32, I am skipping the identification of various people:

"Q. Does Minnesota Mining & Manufacturing Company sell pressure-sensitive adhesive tape to Alles Paper Supply Company of Boston, Mass.? A. Yes, sir.

"Q. Have you done so for several years? A. Yes, sir.

"Q. Three or four years? A. Yes, sir. I think longer than that."

And we identify a Mr. Berman of that company.

"Q. Did you ever tell Mr. Berman that Minnesota Mining was setting up a list of distributors who were not to handle competitive pressure-sensitive adhesive tape, but should deal exclusively with Minnesota Mining? A. I discussed a proposition with him.

"Q. What was the proposition? A. I told him what we had to offer.

"Q. What was that? A. The entire facilities of our sales force, laboratory, customer engineering.

"Q. Did you ask Mr. Berman not to carry"—

Well, I won't read that. They can offer it.

Mr. Haight: You might as well read it right in the context.

Mr. Spille: I will read it, but I don't offer it.

Mr. Haight: If the Court please, I will read it.

"Q. Did you ask Mr. Berman not to carry other brands of pressure-sensitive adhesive tape? A. No, sir.

Mr. Spille: He denies it. O. K.

"Q. What was the deal you had to offer him? I didn't get it all. A. Where we offered him or his company all

or practically all, or maybe all that, we offered our own sales force in the sale of our product, there is tools—

"Q. Does the Alles Paper Company, to the best of your knowledge, carry the pressure-sensitive adhesive tape of Minnesota Mining exclusively? A. I can't say at the moment what he is doing.

"Q. Do you know whether the Alles Paper Company in the past has handled other brands of pressure-sensitive adhesive tape? A. It has been reported to me by our salesman and by Mr. Berman, that he did.

"Q. Did Mr. Berman tell you in the recent past, say within a year, that he will no longer carry anything of"—

It should be "but".

". . . but 'Scotch' brand pressure-sensitive tape?"

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"A. He told me he wanted to think about it very seriously.

"Q. When did this conversation occur? A. Oh, approximately last—

"Q. Last summer? A. No. Later than that. Fall, November, maybe October.

"Q. November or October 1953. Did Mr. Berman, let's say since last summer, tell you that he has decided to play ball with Minnesota Mining & Manufacturing Company? A. He told me very favorably he thought very favorably of our proposal to him.

"Q. That was not my question. Did he tell you that he has decided to play ball or to go along? A. I don't remember that he used those words.

"Q. Was the import or tone of his statement to you along the same lines?"

Mr. Kinney objected.

Testimony of a Minnesota Sales Manager, Albert S. Drew

Page 35, I continue:

"Q. Did Mr. Berman tell you that he had decided to give up all other competitive brands of pressure-sensitive adhesive tape for six months, and to carry Minnesota Mining tape exclusivey during that period? A. For six months?

"Q. Yes. A. I can't remember any such conversation.

"Q. Was it a lesser period? A. I can't remember that there was any time put on it.

"Q. Did he mention a trial period?"

And we have another interruption. Mr. Kinney says: "This is a trial period for what?"

"Q. Do you understand the question? A. I think I understand the question.

"Mr. Spille: All right. Please let him make an answer.

"The Witness: Yes, he did."

Mr. Haight: You had better get the next two questions, Mr. Spille.

"Q. Is he now in the midst of this trial period? A. To the best of my knowledge."

Mr. Haight: The next one:

"Q. So to the best of your knowledge he is carrying Minnesota Mining & Manufacturing Company pressure-sensitive tape exclusively? A. No, I don't say that."

Mr. Spille: "Q. You are not sure of that, right?

"A. I am not sure."

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Testimony of a Minnesota Sales Manager, Albert S. Drew

Mr. Spille: Now I am going to go over to the second day of Mr. Drew's testimony, which was again taken in Boston on May 17, 1954. This was after I had made a motion to compel the witness to answer, and Judge McCarthy had ruled in my favor.

The Court: On all the objections that were made?

Mr. Spille: Yes, sir.

Now, your Honor, may I correct myself, unless I create an erroneous impression, inadvertently. He could only rule on whether the witness should or should not be compelled to answer. He couldn't rule, really, on the relevancy or materiality. He did rule on the form of questions and told me to change the form.

The Court: But all the objections that were raised were resolved in your favor?

Mr. Spille: Yes, sir. He told him to answer the question.

Did I state it was May 17th?

The Court: Yes.

Mr. Spille: Page 43:

"Q. In view of Judge McCarthy's rulings, I am going to ask you again the questions which your counsel,"—and here the reporter put in "Mr. Spinney," and it should be "Kinney"—"previously instructed"—and he put in "him" —"you not to answer, and I will also attempt to clear up one objection as to form that was raised before the motion."

I put this question:

"Can you tell us what the policy is, and let's take 1950 as a base year, what was the policy of Minnesota Mining & Manufacturing Company with regard to distributors and jobbers handling or about to handle pressure-sensitive ad-

hesive tape? A. They were to have an office and a warehouse.

"Q. And were they the only conditions? A. Oh, no; they were to have a sales force of at least one other than the owner; their credit, of course, must be right and good; they should have contact with manufacturers who would be our customers.

"Q. By 'ours,' you are referring to Minnesota Mining & Manufacturing Company? A. To Minnesota Mining & Manufacturing Company. They should carry an adequate stock to properly take care of the immediate needs at least of those customers. They should have more than one customer, and the bulk of their buying should go to more than one customer."

I am skipping.

The witness then stated:

"I can add one more to that now—that this jobber carry lines that would also go to the same type of customers that we would be calling on.

"Q. Back in 1950, was this jobber or distributor in the industrial field for Minnesota pressure-sensitive adhesive tapes free to resell tapes to whomsoever he chose? A. We did not approve of his selling them to a jobber, but outside of that, yes."

I am skipping a lot of intermediate stuff.

On page 47 I asked the witness this question:

"Q. Was it a hard and fast rule in this policy, back in 1950, that if a jobber had only one customer for Minnesota tape, he would not be permitted to become a jobber or continue as a jobber for Minnesota—was that a hard and fast

rule? A. It certainly was not approved of, if it existed. I can't remember any case where it did exist."

And then I commented:

"I am examining Mr. Drew, of course, under Rule 26, as a hostile witness."

I don't think we need any doubt as to that.

Then we had some discovery questions again. I am going over them rapidly.

On page 53:

"Q. In 1952 had Minnesota's policy with regard to distributors changed in any way? A. No, sir.

"Q. In 1953 had it changed in any way? A. No, sir.

"Q. Is it the same today as it was in 1950? A. Yes, sir.

"Q. I believe you told us previously that you have entered into agreements with certain distributors or jobbers to carry Minnesota tape exclusively; is that correct? A. Before answering that, I would like to know, if I may, Mr. Spille, just what is meant by the word 'agreement.'

"Q. I suggest you ask your counsel. I dare not try to instruct you, Mr. Drew. A. I don't care to be instructed. I just don't want any danger of there being two different interpretations of the word 'agreement.'

"Q. Suppose I ask you then if you have made any gentleman's understandings or agreements with any jobbers or distributors to handle Minnesota tape exclusively? A. In this respect: That we have proposed certain things and they have or have not accepted them."

Then we had a long discussion.

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Testimony of a Minnesota Sales Manager, Albert S. Drew

Mr. Spille: Resuming after that question, which perhaps for clarity I had better read:

"Q. Suppose I ask you then if you have made any gentleman's understandings or agreements with any jobbers or distributors to handle Minnesota tape exclusively. A. In this respect: That we have proposed certain things and they have or have not accepted them."

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"Q. Let me ask you this, Mr. Drew: In denying that you would call it a policy of requiring jobbers or distributors to carry only Minnesota tape, you previously said:

'I don't think I personally would call it a policy. I would say it is an agreement.'

"Is that correct? A. Yes, sir.

"Q. And you have restated that testimony, is that correct? A. Right.

"Q. Do you deny that you have agreements with jobbers or distributors—yes or no? A. I can't answer it yes or no.

"Q. All right; then answer it in your own way. A. I don't know just what the word 'agreement' constitutes in your mind. I know we made proposals and they have been accepted sometimes and rejected sometimes.

"Q. In those proposals which have been accepted has the jobber or distributor agreed not to carry anything but Minnesota pressure-sensitive tape? A. Competitive to ours, yes.

"Q. They have made such agreements? A. They have said they would try it and see."

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"Q. They have made such agreements? A. They have said they would try it and see.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. Name the distributors or jobbers who have made such agreement?"

Then there was an objection. I threatened to go back to Judge McCarthy to get him to answer and finally Mr. Hamilton said:

"I will let the witness answer if he knows."

And then the witness continues:

"A. We have 25 or 30.

"Q. Where are they located, sir? A. New England. There may be more than that.

"Q. There may be more than that? A. Yes.

"Q. And these agreements date from the summer of 1953; is that correct? A. I don't like to have the word 'agreement' come in because I think there is a difference between your interpretation of it and mine.

"Q. Let's term it the acceptance of your proposals or gentleman's understanding, if that is a less obnoxious term. You say there have been 25 or 30 acceptances of your proposals or gentlemen's understandings in New England; is that correct? A. Yes, sir.

"Q. And those are all industrial jobbers or distributors who handle pressure-sensitive tape? A. Yes.

"Q. To the best of your knowledge, did any of them handle pressure-sensitive tapes of Technical Tape Corporation? A. I can think now of two.

"Q. Will you please name them? A. Alles Corporation and I think Stimson, Inc."

Your Honor, we previously I think have identified Alles.

"Q. Where is Stimson, Inc. located? A. Boston.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. Alles Corporation is Mr. Berman's company? A. That is right.

"Q. Are those acceptances of your proposals or gentlemen's understandings currently in force? A. I have not been advised otherwise, so I will say yes.

"Q. Did you make the agreements or proposals or understandings which were accepted? A. In those two cases, yes, I did.

"Q. Who handled those matters in the 23 or 28 other cases? A. The salesmen. Many of those firms, Mr. Spille, had always done business with us to the exclusion of any competitors."

I am now skipping down to the bottom of page 61:

"Q. Is it your testimony, sir, that with the exception of Alles Corporation and Stimson, the main 23 or 28 did not accept such proposals or make such gentlemen's agreements or understandings with Minnesota? A. I can't quite get what you want, Mr. Spille. I want to answer the question."

Then there was a short recess and the answer was:

"A. Others accepted, but others to my memory and knowledge, were not handling Tuck tape, but were handling other tapes."

"Q. Then there is a total of approximately 25 or 30 jobbers in the New England area who have accepted the proposals you made or with whom you have a gentlemen's understanding, is that correct? A. Not as you word it, Mr. Spille.

"Q. I withdraw the question."

Then the witness volunteered:

Testimony of a Minnesota Sales Manager, Albert S. Drew

"A. As I previously said, there were many of those distributors who had never handled competitive tapes, so we had no proposal to make to those people. We did announce to them what we were going to do.

"Q. How many of these 25 or 30, prior to the acceptance of these proposals or the making of these gentlemen's agreements, had been carrying brands of pressure-sensitive tapes other than Minnesota's brands? A. 5 or 6.

"Q. Can you name those 5 or 6? A. G & S Paper Company, West Newton.

"Q. What brands had they handled prior to this gentlemen's agreement? A. I knew they were handling Permacel. They may have been handling others besides Permacel.

"Q. That is one. A. H. J. Dowd Company, Cambridge.

Q. What brands had H. J. Dowd Company been handling? A. Permacel.

"Q. And perhaps others? A. Perhaps others; I am principally aware of Permacel.

"Q. Incidentally, H. J. Dowd Company is one of the larger distributors or jobbers in the Boston area; is that correct? A. That is correct.

"Q. What is the third one? A. D. F. Monroe.

"Q. Where is that located? A. Boston.

"Q. What brand had they been carrying? A. I think they were carrying Seamless."

The Court: What is that name?

Mr. Spille: Seamless.

The Court: That is a new name?

Mr. Spille: It is new to me. Mr. Cohen isn't here, your Honor, and I can't tell you much about it.

Mr. Haight: That is the Seamless Rubber Company. They make this pressure-sensitive tape.

Mr. Spille: Do you know what brand, Mr. Haight?

Mr. Haight: Paper masking and filament tape.
The Court: All right.
Mr. Spille: (Continuing reading)

"Q. And perhaps others? A. I don't think so.
"Q. What is the fourth one? A. I want to go back to H. J. Dowd, if I may.
"Q. Surely. A. H. J. Dowd surely carries Bauer & Black.
"Q. H. J. Dowd carries Bauer & Black as well as Permacel? A. Yes; and they still carry Bauer & Black."

Now going to the bottom of the page:

"Q. I think you stated there was a total of 7. A. I don't think there were that many. Perhaps Whitney Brothers.
"Q. Where are they located? A. Boston.
"Q. What brand were they carrying, sir? A. If they were carrying any, it was Permacel, as I remember it.
"Q. You cannot at the present time recall any other specific companies; is that correct? A. Yes, sir.
"Q. Is G & S Paper Company quite a large jobber or a small jobber? A. They are small jobbers but they are very active."

Mr. Spille: And then he characterized some of the others as large or small. I am skipping that.
Page 66 after some colloquy:

"Q. Suppose we go back, and I will try to clear it up. When you entered into these gentlemen's agreements with these 25 or 30 distributors or jobbers—whatever the number was—was that with the approval of your superiors in Minnesota? A. I reported afterward with whom I had had these conversations.
"Q. Did your superiors disapprove of the action you had taken? A. No, sir.

Testimony of a Minnesota Sales Manager, Albert S. Drew

"Q. So you understood you were authorized to make the proposals? A. Yes, sir. I still do not like the word 'agreement.'

"Q. To whom did you make your report? Which of your superiors in Minnesota did you speak to? A. I probably started with Mr. Bennison.

"Q. Again, were these reports oral or in writing? A. They were very apt to be both."

Then skipping over to page 67:

"Q. These various jobbers we have been discussing carried or have carried both cellophane tapes and masking tape, is that correct? A. That is correct.

"Q. In other words, in making these various understandings or proposals, you drew no distinction between cellophane tape and other pressure-sensitive tapes—for all you knew they were treated as one class? A. That is correct."

Now bottom of page 67:

"Q. I believe in your testimony on March 26th you stated that you once had authority to decide which distributors and jobbers you would retain and which distributors and jobbers you would drop? A. That is right.

"Q. Is that correct? A. That is correct.

"Q. Can you tell me when your authority to take such action was terminated? A. I don't believe there has been anything written until quite recently, but it has been pretty well understood for the last two years, let us say.

"Q. That your authority— A. Advise with and discuss with my immediate superior. I think that came into effect when Mr. Bennison moved east as regional sales manager.

"Q. So to your best recollection, Mr. Bennison was responsible for terminating your authority to take such

action? A. No, I don' think so, in the way in which I think you mean that, Mr. Spille. It is just that previous to that, I had to go as far as St. Paul, Minnesota, to discuss anything with anybody. When Mr. Bennison came east as regional sales manager, it gave me somebody I could sit down and talk with.

"Q. Let me put it this way: In taking such action or inaction with regard to jobbers before Mr. Bennison's promotion--and I assume he was promoted—you had previously acted somewhat autonomously, or had made your own decisions as to what to do, but after Mr. Bennison's arrival, you got the okay or approval from him; is that right? A. Yes."

That ended the examination and there was no cross-examination.

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Direct Deposition Testimony of A. Trachtenberg, Boston Paper Merchant called by Technical

[Record pp. 2732-35, 2740-42, 2747-48, 2755]

"Q. Will you please state your full name? A. Abraham Trachtenberg.

"Q. And your age, please? A. 39.

"Q. Where do you reside? A. 19 Oakwood Terrace, Newton Center, Mass.

"Q. Are you in business, Mr. Trachtenberg? A. I am.

"Q. What is the nature of your business? A. Paper merchant.

"Q. Do you do business under your own name? A. No.

"Q. What name do you do business under? A. Edwards Paper Company.

"Q. Edwards Paper Company. That is the offices where we are presently located? A. Yes.

Deposition Testimony of A. Trachtenberg, Boston Paper Merchant

"Q. 33 Simmons Street, Roxbury? A. Right.

"Q. Is the Edwards Paper Company a sole proprietorship of you? A. No.

"Q. Will you please explain your relationship to Edwards Paper Company. A. Partner.

"Q. A partnership. A. Partnership.

"Q. How long has the Edwards Paper Company been in business. A. 1945.

"Q. You started—A. Started in 1945.

"Where were you located then? When I say 'you' I am referring generally to Edwards Paper Company. A. On Milk Street in Boston.

"Q. Do you recall the exact address? A. 208.

"Q. And when did you move to the Simmons Street address, approximately? A. July 5, 1953.

"Q. Now, will you explain what business the Edwards Paper Company conducts? A. We are jobbers.

"Q. In what fields, Mr. Trachtenberg? A. Selling to the industrial fields or the industrial consumers.

"Q. What type of products do you sell? A. Kraft paper, gum tape, twine, tissue, toilet paper, pressure-sensitive tapes, and so forth.

"Q. You mentioned pressure-sensitive tape. From whom does Edwards Paper Company get its supply of pressure-sensitive adhesive tape? A. Technical Tape.

"Q. Did the Edwards Paper Company ever get pressure-sensitive adhesive tape from any other company besides Technical Tape Corporation? A. Yes.

"Q. Can you identify that other company? A. Yes.

"Q. What is it, please? A. Minnesota Mining.

"Q. Minnesota Mining and Manufacturing Company? A. Yes.

"Q. When did you commence stocking and reselling pressure-sensitive adhesive tape made by Technical Tape Corporation, approximately? I don't mean the exact date. A. Oh, 1947.

Deposition Testimony of A. Trachtenberg, Boston Paper Merchant

"Q. When did you commence carrying pressure-sensitive adhesive tape made and sold to you by Minnesota Mining & Manufacturing Company? A. 1952.

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[Record p. 2740]

"Q. I believe you previously testified you no longer carry Minnesota Mining & Manufacturing Company pressure-sensitive tapes. A. We do not.

"Q. Will you please explain how and why you ceased to carry Minnesota Mining tape. A. They shut it off.

"Q. When did that occur? A. Early in 1953.

"Q. All right. Can you recall specifically what happened at that time? A. Yes. I received a telephone call from Minnesota Mining Corporation, whatever the name is—

"Q. Did the person identify himself who spoke to you? A. Yes, it was Mr. Burhoe.

"Q. Do you recall what month it was, Mr. Trachtenberg? A. (no response.)

"Q. If you don't recall, just say so. A. I believe it was somewhere in the early part of 1953. I think it was February. I wouldn't swear to it.

"Q. Now, what did Mr. Burhoe say to you at the time? A. Mr. Burhoe said to me that he was speaking for Mr. Drew.

"Q. Did he identify Mr. Drew? A. Yes.

"Q. How did he identify him? A. Identified Mr. Drew as being his superior."

That is a brother of the one we had on the stand, your Honor.

The Court: Yes.

Mr. Morris: (Reading)

Deposition Testimony of A. Trachtenberg, Boston Paper Merchant

"Q. In the Minnesota Mining & Manufacturing Company? A. In the Minnesota Mining & Manufacturing Company.

"Q. And what did Mr. Burhoe tell you? A. Mr. Burhoe told me that Minnesota Mining was inaugurating a new policy in this area.

"Q. And what was that policy? A. And that was a policy which he told me they had inaugurated in Rochester and it had worked very satisfactorily there.

"Q. What was the policy he stated? A. Basically, an either-or policy.

"Q. What do you mean by that? A. Either you handle our tapes and nobody else's; if you handle anybody else's you can't handle ours.

"Q. What did you tell Mr. Burhoe at that time? A. I explained to Mr. Burhoe that basically the largest volume of our business was being done with Technical Corporation, and on that particular basis we would prefer to remain with the company—or we would prefer to remain with Technical Tape Corporation.

"Q. Did Mr. Burhoe tell you that you could continue to purchase pressure sensitive adhesive tapes from Minnesota Mining & Manufacturing Company? A. Mr. Burhoe told me we could no longer purchase pressure sensitive adhesive tape from Minnesota Mining & Manufacturing Company.

"Q. Did he offer any other explanation or reason other than the one you have stated? A. None.

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[Record p. 2747]

"Q. Have you made any further attempt to purchase pressure sensitive adhesive tapes from Minnesota Mining & Manufacturing Company? A. Yes.

"Q. And what happened? A. Sometime in November, late in November—

Deposition Testimony of A. Trachtenberg, Boston Paper Merchant

"Q. Which November? A. 1953. I placed a call to Minnesota Mining in Newton Center—

"Q. To whom did you speak? A. The operator first. I asked for Mr. Drew. The operator informed me Mr. Drew was not available at that specific time but that she could connect me with his assistant, a Mr. Hill.

"Q. Did you speak to Mr. Hill? A. I spoke to Mr. Hill.

"Q. Did he identify himself? A. He did.

"Q. What did he say and what did you say? A. I asked Mr. Hill if the general policy that Minnesota Mining had instituted some time ago in reference to exclusive selling was still in effect.

"Q. What did Mr. Hill say? A. 'Yes.'

"Q. Did you identify yourself to Mr. Hill? A. Yes.

"Q. Did you tell him you were connected with the Edwards Paper Company? A. Yes.

"Q. Did you tell him that you no longer sold Minnesota Mining & Manufacturing Company tape because you had been cut off? A. Yes.

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Cross-Examination

[Record p. 2755]

Mr. Haight: (Reading)

"Q. What I am getting at, Mr. Trachtenberg, if it will help you, you were not trying to push Minnesota Mining tapes. Your main effort was on tapes of other manufacturers, was it not? A. No.

"Q. The answer to that question was No. You were trying to push Minnesota Mining tape? A. Yes.

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Direct Testimony of C. L. Arnold, a Pawtucket Jobber, called by Technical

[Record pp. 2793-98, 2800-03, 2806-11]

Q. How old are you, Mr. Arnold? A. 42.

Q. Are you in business, sir? A. Yes, sir.

Q. What business are you in? A. I have office supplies and printing.

Q. Will you speak a little louder. A. Office supplies and printing.

Q. Are you in business for yourself, sir? A. Yes, sir.

Q. Under what name do you do business? A. Lloyd's Office Supply.

Q. Where, sir? A. In Pawtucket, Rhode Island.

Q. Is Lloyd's Office Supply a corporation or what form of business is it? A. No, it is solely owned by myself. There is no corporation or anybody involved.

Q. When did you start in business under the name Lloyd's Office Supply? A. In 1949.

Q. In Pawtucket? A. In Pawtucket.

Q. Have you always occupied the same business address in Pawtucket? A. No; I have moved since the original start of the business; I have moved twice, so that this is the third place that I am in now since I have been in business.

Q. Will you describe to the Court the business facilities you have at your present place of business? A. Well, we have about from 7500 feet storage space, plus our offices and showroom.

Q. How many employees do you have? A. Well, let's see. We have five.

Q. What kind of products does Lloyd's Office Supply buy and sell? A. Well, we are considered in the trade as what you might call commercial stationers. In other words, we have, approximately, in the stationery field itself there

are about 18,000 separate items, say, plus furniture and things of that type. In other words, everything that goes in with the line of supplies that commercial accounts would use.

Q. When you buy products do you resell them to customers to consume or use the products themselves, or do you sell to customers for the purpose of resale by them? A. In most cases they consume them. We do have some people who buy them for resale, but that is a minor part of the business.

Q. What type of customers does Lloyd's Office Supply have? A. Well, mills, factories, offices, and things of that type.

Q. Do you sell to any governmental institutions? A. Well, we sell to several States through bids that are let out, plus cities and towns, schools, and things of that type.

Q. Would you please name the States? A. Right now we are selling to the State of Pennsylvania, the State of Rhode Island, and the State of Connecticut.

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Q. Now, does Lloyd's Office Supply now purchase and resell pressure-sensitive adhesive tape of any character? A. Yes, we do.

Q. And have you done so in the past, sir? A. Well, ever since I have been in business I always sold pressure-sensitive tape.

Q. And what kind or what brands of pressure-sensitive cellophane tape did you first start to sell? A. Minnesota Mining or Scotch Brand as it is known in the trade.

Q. And could you describe were they masking tapes, or were they cellophane tapes, or were they cloth tapes, or what? A. Well, it was the general line of tapes which include pressure-sensitive cellophane or masking tapes, and the dispensers which go along with the tape.

Testimony of C. L. Arnold, a Pawtucket Jobber

Q. Now, starting with the first year when you were in business, approximately how much of Minnesota Mining tapes and dispensers—I am speaking generally now—A. Yes.

Q. —did Lloyd's Office Supply buy for resale? A. Well, it was approximately I would say between fifteen hundred, around $1500, in that vicinity. It might have been a little more.

Q. $1500 per year? A. Well, about that, but it could be a litle bit larger later on, but I mean the first year like everything else my volume was not that high, and as I went along, of course, some things increased and some things did not. It varied a little.

Q. Now, let us take 1952, Mr. Arnold. Approximately how much of the Minnesota Mining pressure-sensitive tapes and dispensers did Lloyd's Office Supply buy for resale? A. About $2000.

Q. $2000? A. Yes.

The Court: Is that the purchase price or the selling price?

The Witness: That is the selling price.

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[Record p. 2800]

The Court: Your total purchases from Minnesota Mining during the year 1952 amounted to approximately $2000?

The Witness: That is right, your Honor.

The Court: All right.

By Mr. Spille:

Q. It was then resold at a markup and was included in the $76,000 gross, is that right? A. That is right, yes.

Testimony of C. L. Arnold, a Pawtucket Jobber

Q. Does Lloyd's Office Supply now sell "Tuck" brand pressure-sensitive tape? A. Yes.

Q. When did you first start buying and reselling "Tuck" brand pressure-sensitive tape? A. I believe it was early in 1953, or it might have been the early part of the year, or in the first part of the summer.

Q. 1953? A. Yes.

Q. Is it '52 or '53? A. I guess it was '52 because—that is right, it was '52. It was early in '52.

Q. Do you now purchase and resell Minnesota Mining pressure-sensitive tape? A. No, I don't.

Q. When did you stop buying and reselling Minnesota Mining pressure-sensitive tape? A. At the end of 1953. It was either in September or October. It was late in the year.

Q. Will you please tell the Court the circumstances under which you ceased purchasing Minnesota Mining tape? A. Well, I had been buying and selling Minnesota Mining tape exclusively up until the time I took "Tuck."

And, of course, the reason I did that was because some of my competition was selling "Tuck" and on account of the price structure that Minnesota Mining had I found that I could not compete, so I took the "Tuck" line on along with the Minnesota Mining line, and I carried them both up until I would say it was in the fall, around September, August or October of 1953.

And at that time Mr. Wiggins, who was a salesman, and who called on me for Minnesota Mining, came in and told me that under a new company policy, that since I had been carrying a competitor line of tape that it was their feeling that I would have to either stop selling the "Tuck" tape or they could no longer sell me Minnesota Mining tape.

So I, of course, argued the point because I knew there were certain things that I might lose if I did not have the Scotch Brand Tape.

Testimony of C. L. Arnold, a Pawtucket Jobber

Q. Pardon the interruption, Mr. Arnold, but when did Mr. Wiggins call upon you? A. Well, he called at my office in—like I say, it was either August or September, 1953.

Q. How frequently had Mr. Wiggins called upon you in the past? A. Well, at that time I had moved from—I had a place at Columbus Avenue and I had been in my new quarters for, well, about at least six or eight months.

Q. Yes. A. And prior to that I had not seen him at the old place for six months, so I actually had not seen Mr. Wiggins in almost a year, or pretty close to a year.

Q. Please pardon the interruption, and will you now continue with the conversation between yourself and Mr. Wiggins. A. So I argued the point with him, and I told him I did not think it was fair about not even giving me any kind of a fighting chance, so to speak. And he said, well, he was sorry but he could not do anything about it because it was the company policy. So I said, "Well, I don't know what to say. I hate to lose the business that I know I am going to lose." "Well," he said, "I will give you two or three weeks to think it over and I will stop back."

Q. And what did you thereafter do? A. Well, of course I was—the more I thought about it the madder I got actually, and then within a day or two I called the Minnesota Mining office in Newton, I think it is, it is up near Boston, and I spoke to Mr. Al Drew, who was the sales manager for that area, and I told him what had happened, that I actually could not believe that, I said, and I asked "Is it something that Mr. Wiggins is doing on his own or is it actually company policy?"

He said, "Well, there is nothing I can do about it. He is right. It is the company policy, and that is what we have to do."

So I understood his position, but I just wanted to make sure that Mr. Wiggins was right in his statement.

So when Mr. Wiggins came back, which was two or three weeks later, he asked me if I had decided what I was going to do, and I told him there was nothing else I could do but go along with the Tuck, because while I was losing—while I knew I was losing business by not having Minnesota tape, I thought that I probably would have more to lose on the other side if I did not carry the Tuck line.

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[Record pp. 2806-07]

Q. Had you ever met Mr. Al Drew? A. Yes, I have met Al—Mr. Drew, on several occasions. I think the last time that I met him prior to this conversation I had with him was at the—when Minnesota moved their Boston office to, I think it is, Newton—I am not sure—I know my wife and I went up there; they had an open house and, of course, the invitations were extended to all the jobbers to come up to the open house, so I went up there that night and I did meet Mr. Drew at that time.

Q. This call you refer to, this conversation with Mr. Drew, did you go to Boston personally to see him? A. No, I called him from my office.

Q. Oh, by telephone? A. That's right.

Q. How did you know you were speaking to Mr. Drew? A. Well, they have a switchboard up there and of course you ask the operator; when calls come in the receptionist or telephone operator will ask who you want to speak to, and I had spoken to Mr. Drew over the telephone before, and of course I know I was speaking to Mr. Drew.

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Testimony of C. L. Arnold, a Pawtucket Jobber

Q. After your business relationship with Minnesota Mining ceased, did you buy any other brands of pressure-sensitive tape? A. Yes, I did. After Mr. Wiggins came in and told me that I would not be able to buy anything else from Minnesota, along with the pressure-sensitive tapes, particularly cellophane, there are dispensers that are made expressly for the use of cellophane tape, and since "Tuck" Tape had no line in there—I mean, there was no associationship with the line on dispensers, I was compelled to get them elsewhere. Now the only other place that I could get these machines was through Texcel Tape, which is today Permacel Tape, so I immediately called, I made a contact with them and asked their salesman to call; and at that time I opened an account with them and bought some of their tape and some of their dispensers so that I wouldn't be without them.

Q. Did you continue to sell Texcel Tape? A. Yes, I still sell Texcel Tape.

Q. And "Tuck" Tape too? A. That's right.

Mr. Spille: No further questions.

The Court: Does the dispenser that you bought from Minnesota Mining have any indication on it that it comes from Minnesota Mining?

The Witness: Well, it has a decal or some identification on that says Scotch Brand.

The Court: Would you think that you could, in good faith, sell "Tuck" Tape to be dispensed from a machine which conveys to the public that it is a Minnesota Mining machine?

The Witness: Well, probably to clarify that point, the dispensers that I used are made by several of the packaging companies. I know one of them is Better Packages.

You see, the setup with these companies is that you have to buy so many of these dispensers of any

kind, for any kind of dispensing paper tape, that for the average person to buy them in quantity where they could sell them and make a profit, it is almost impossible. So that the setup that most of the tape companies have, they buy the dispensers from the people who make them and some way or other they identify them so that, although they don't actually make the dispensers, they buy them in quantity and then they resell them to their jobbers or whoever buys the tape from them, and there are several companies that make them.

But you will find, even before "Tuck" Tape came into the picture, that you would walk into an office and you might find a Texcel dispenser with Scotch tape in it, or you might find Scotch tape dispensers with Texcel tape in it. The dispensers are made with two cores. One is a 3-inch core, which is the larger size, and the other is a smaller size which takes what we call the 1296 roll of tape. So that they are interchangeable as far as using the dispensers, and the tapes are all made in the same diameter of roll, and it will take up to a certain width of tape.

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[Record pp. 2816-17]

Q. Whenever, Mr. Arnold, you had a shipment of tape which the manufacturer of the tape, whoever it was, delivered directly to the customer and characterized as a drop shipment, who first bought the tape? Did you or the customer buy it from the manufacturer? A. Well, the customer bought it from me, and then I bought it from the manufacturer.

Q. And who paid who? A. Well, the customer had to pay me, and then I had to pay the manufacturer, because that was one of the risks involved. It was up to me to pay them.

Testimony of C. L. Arnold, a Pawtucket Jobber

The Court: The customer can't give you credit you mean?

The Witness: That is right. If I didn't get paid off the customer to whom I sold it to, you see, I would still have to pay the tape company.

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Cross-Examination

[Record pp. 2823-25]

Q. When 3M struck you off as a distributor, did you lose a single customer other than Glasscraft? A. Yes.

Q. When you testified in Boston, and I will now refer you to page 28 of that same exhibit— A. Page 28?

Q. Yes, the first question on the page, and I will read it:

"Q. After Minnesota Mining & Manufacturing Company some time in August or September 1953 refused to sell you any more pressure-sensitive tape unless you carried their line exclusively, did you lose any customer other than the one you mentioned, Glasscraft? A. In so far as I know, I didn't."

Was that true? A. Well, that is true, and I didn't know it at the time that I gave this testimony.

Q. Well, now, what have you learned since? A. I have learned since that one company that was buying tape from me when I told them that I couldn't sell them Scotch Brand Tape any more, at that time told me that it didn't make any difference, but then I didn't get an order from them after that.

Then as time went on I can tell you that I questioned this man, and I asked him what the trouble was, what happened, that I wasn't getting an order.

Now, this is after—this is not too long ago either, as a matter of fact, and he told me that they—not that he had any direct word about it, but people that used it, or somebody in the place insisted on Scotch Brand Tape.

Now, when I gave that testimony, or when I said that in so far as I know I didn't lose any customers, I didn't know, and I assure you I didn't know because you can't go to customers and ask them about every item that they are buying.

Now, if somebody was using a particular tape, a particular brand of tape, and you could not supply it, they didn't always say, "Well, we will take a substitute." You just didn't hear any more about it.

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Direct Testimony of Mrs. C. L. Arnold, called by Technical

[Record pp. 2858-59, 2866-70]

Q. I am going to ask you, first, if you will get out of your natural sweet voice and see if you can't talk to that mythical person that is right up against that back wall back there. A. Yes, sir.

Q. Mrs. Arnold, what is your full name? A. Elizabeth Arnold.

Q. For whom do you work? A. For my husband, Mr. Arnold.

Q. And what is the name of the company? A. Lloyd's Office Supply.

Q. How long have you worked for that company? A. Three years.

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[Record pp. 2866-2870]

Q. Now you heard your husband testify about a visit by Mr. Wiggins of Minnesota Mining. I think it was in August 1953. Were you there at the time Mr. Wiggins visited the plant, in your office I would say, in 1953? A. Yes.

Q. And were you in the same room? A. Yes, I was.

Q. With you husband and Mr. Wiggins? A. Yes. When Mr. Wiggins first came in, I don't believe I had met him before; you see, I see most of the salesmen even before Lloyd does; and I don't recall ever having seen him before, so I didn't know who he was, but he said he was from Minnesota Mining.

So they went in the back room first, and then Lloyd was a little upset, and they came back and they repeated the conversation to me.

Q. Now what did your husband say and what did Mr. Wiggins say when the conversation was repeated? A. Well, at first it started about this Glasscraft incident because, naturally, that was quite an item, and we were having trouble with it. And he said that unless we dispensed with every other tape, they couldn't sell, Minnesota Mining, they would shut us off. And, well, I said that I thought they were being dictators, and he didn't like that; but he said he had no explanation for it, and he didn't try to explain it.

Q. I beg your pardon? A. He didn't try to explain it.

Q. And what other kind of tape were you buying at that time other than "Tuck" tape and Minnesota Mining tape? A. I don't think we had any other at that time. We hadn't taken on Texcel, Permacel.

Q. Later you did take on Texcel? A. Yes, we had to, because of the dispensers.

Q. That is, you had to get dispensers from them? A. Yes.

Q. Now at a later time or, let us say, at that time, at the time of that conference in August 1953, what kind of tapes were you buying from Minnesota Mining? A. Well, the cellophanes and the masking tape. I don't know the technical terms. If a customer called and said they want masking tape I know what it looks like and it says masking tape on the box, and that is what they get; or on the cellophane, I know the size and the lengths.

Q. Masking tape is a paper tape, isn't it? A. Yes, it is a sort of odd-looking—

Q. Does that look like masking tape you are talking about? A. Yes.

Mr. Morris: The witness has been shown Exhibit 93.

Q. And did Mr. Wiggins at that time, in August 1953, when this conference was being had, did he say whether or not your company would be shut off from buying masking tape as well as cellophane tape? A. He didn't specify anything. He just said Minnesota Mining would no longer supply us with anything. I mean, there was no stipulation as to what item.

Q. And at that time you were also buying dispensers from Minnesota Mining? A. Yes.

Q. Now, after that conference, that personal conference, did you make a call to Mr. Albert S. Drew? A. Yes.

Q. Did you personally put in the call? A. Yes, I place all the calls.

Q. Where did you call him? A. In Newton, Massachusetts. And I told the operator who I wanted and that Mr. Arnold was calling, and she put him on, and then Mr. Arnold took over.

Q. When you say the operator, you mean the operator in Mr. Drew's office? A. That is right. Well, they have a switchboard.

Q. And how did you know it was Mr. Drew? A. Well, personally I wouldn't know it was Mr. Drew, except that he answered the name Mr. Drew.

Q. When you said, "Is this Mr. Drew?" he said "Yes"? A. That is right.

Testimony of Mrs. C. L. Arnold

Q. Did you hear the end of the telephone conference that took place between your husband and Mr. Drew, that is the end— A. I heard Mr. Arnold's conversation, yes.

Q. That is what I mean. You heard him testify here in court about that? A. Yes, sir.

Q. Is your recollection the same or different in respect to what Mr. Arnold said? A. Well, I would say it was about the same. I couldn't remember the conversation verbatim, I hear so many of them; but I do know that he was quite perturbed when Mr. Drew said that that was a definite policy, and he said he didn't believe it. And, of course, when he hung up that was our topic of conversation, that was the important part.

Q. That is, he told you that is what Mr. Drew had said? A. That is right.

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Direct Deposition Testimony of Samuel Rosendorf, Virginia Jobber, called by Technical

[Record pp. 2946-54]

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"Q. Will you please state your name? A. Samuel S. Rosendorf, Jr.

"Q. Where do you reside? A. My street adress is—

"Q. Your residence address. A. 7110 University Drive, Richmond, Virginia.

"Q. What is your age? A. 45.

"Q. What is your business? A. I am a partner in the Southern Stamp and Stationery Company, Richmond, Virginia.

Testimony of Samuel Rosendorf, Virginia Jobber

"Q. What is the business of Southern Stamp and Stationery Company? A. Well, we sell a general line of all stationery supplies, office furniture and equipment. We operate a printing plant, and also manufacture rubber stamps.

"Q. Among the items you sell do you also sell tapes of any kind? A. Yes, we sell all types of tapes.

"Q. For how many years have you been selling tapes? A. For many, many years we have sold just the ordinary gum sealing tape. We started to sell cellophane tape and related products in the middle '30s.

"Q. Whose product did you start selling in the middle '30s? A. We took the line of Minnesota Mining and Manufacturing Company.

"Q. Did you sell Minnesota Mining and Manufacturing Company's cellophane tape? A. We sold both their cellophane, drafting and masking.

"Q. Going back to the time— A. Also we sold some electrical tape.

"Q. Going back to your company, the Southern Stamp and Stationery Company: What is the standing of that company insofar as the office supply business is concerned in the City of Richmond? A. I would say that we are one of the largest suppliers of stationery supplies. I am not saying we do the largest business, but in stationery supplies we are probably second or third in the city in volume. In the supply end.

"Q. How long has your company been in business? A. My father started the business in the late 1890's. I don't remember the exact year.

"Q. As I understand your testimony you started handling the Minnesota line of pressure-sensitive adhesive tape in the middle thirties? A. I don't know the exact year, but I would say in the middle thirties.

"Q. What has been your average purchases of Minnesota Mining and Manufacturing Company products from

1942 through 1952? A. I would say that we would average from three to four thousand dollars a year. I would imagine so. I have never checked it actually, but I think it would run approximately that amount.

"Q. What happened in 1953 as far as your sale of Minnesota Mining and Manufacturing Company tapes are concerned? A. Our sales jumped for the year of 1953, we purchased approximately twenty-five thousand dollars worth of all kinds of tapes from Minnesota Mining.

"Q. What was your status as far as Minnesota Mining and Manufacturing Company is concerned, were you a jobber, or distributor of their products? A. Well, whether we were a jobber or a distributor is a question I couldn't say. I mean, there is a fine point between the two. I just do not know which we were, frankly.

"Q. Do you also sell other brands of pressure-sensitive adhesive tapes, Mr. Rosendorf? A. Well, for some years off and on we have bought some types of tape from the Industrial Tape Corporation, which is now Permacel Tape.

"In the fall of 1952 we heard of Technical Tape Corporation, and we started an account with them buying some of their tapes.

"Q. What kind of tapes did you buy from Technical Tape Corporation? A. Well, in the beginning we bought cellophane tape, and eventually placed more orders, branched out into masking, drafting, electrical and other types of tape that we sell that they manufacture. Also cloth tapes, which is manufactured by Technical Tape.

"Q. Do you know the brand name that Technical Tape Corporation uses to identify its tapes? A. Tuck Tape.

"Q. Do you still sell the products of Technical Tape Corporation? A. Yes.

"Q. After you began selling Technical Tape Corporation tape, did you continue to sell the Minnesota Mining and Manufacturing Company tapes? A. We sell tapes of

Minnesota Mining and Manufacturing Company, did until December of 1953.

"Q. You bought your tapes from Minnesota Mining until that time? A. Certain types of tape from Minnesota. We bought certain types of tapes from Industrial Tape Corporation. And certain tapes from Technical Tape. However, we were cut off by the Minnesota Mining and Manufacturing Company in December of 1953.

"Q. Before you were cut off in December of 1953, did any representative of Minnesota Mining and Manufacturing Company call on you to discuss that matter or talk to you about your orders to Minnesota Mining and Manufacturing Company? A. Yes. On November 24, 1953, Mr. Holloran and Mr. Ralston, representing the Industrial and Stationery Division of Minnesota Mining Company paid me a visit, at which time Mr. Holloran told me he didn't like to see other makes of tape being used in dispensers furnished by Minnesota Mining and Manufacturing Company.

"He also made the statement in his visit that he would recommend to his superiors that we be not allowed to sell any further tape of the Minnesota Mining Company, but that he himself could not do so. He further stated that he would recommend that our orders be slowed up.

"Q. What did you understand was meant by the words 'slowed up?' A. That is what has puzzled me, because I cannot see how any company could slow orders up. But those were the words that he used.

"Q. Did he give you to understand the reason why he was making that recommendation to his superiors? A. Mr. Holloran stated the fact that he didn't like to see other makes of tape being used in dispensers that he had furnished.

"Q. What other makes of tape did you understand him to refer to? A. I can answer that question, I believe. Mr.

Holloran went into the plant of Reynolds Metals Company in Richmond and looked around and saw what type of tape was being used there.

"Now the funny thing is that we didn't replace tape being used in the Reynolds Metals Company of Minnesota. We replaced tape that was being bought by Reynolds Metals Company from the Industrial Tape Corporation.

"Q. When you replaced that tape, with what brand of tape was it replaced? A. We replaced it with Technical, with Technical tape, or Tuck Tape. However, at various times our customer ordered tape manufactured by Industrial Tape.

"Q. After your meeting with Mr. Holloran and Mr. Ralston in November of 1953, did you have another meeting with representatives of Minnesota Mining and Manufacturing Company? A. Yes, on December 8 I was paid a visit by Mr. Steinbreker, and Mr. List.

"Q. Was that December 8, 1953? A. Yes, sir. December 8, 1953.

"Q. Will you tell us the substance of the conversation? A. The sum and substance, what they could not understand, was why we were continuing to send purchase orders in, that they thought that I understood from the visit of Mr. Holloran that they would no longer accept orders.

"In questioning Mr. Ralston he admitted that Mr. Holloran didn't say he cut us off, but that he would recommend his superiors that we be cut off, which we had never received any communication at all on until this time.

"Mr. Steinbreker told us that they were changing their methods of distribution, and they could see no future in their plans for us.

"I brought out the point of the amount of sales that we had given Minnesota that year, and it is my belief that if they were shortening their lines of distribution then why would they pick us, who I believe were their largest

account among the stationers in the City of Richmond, rather than a small account which may have bought only several hundred dollars worth a year.

"We asked Mr. Steinbreker and Mr. List if we had always discounted our bills by the 10th of each month, they agreed that we had.

"We also asked them if we had upheld our price structure, which they agreed that we had. And they would give us no expression, no express reason, that they were cutting us off except that it was implied that, in that conversation, we were handling another line of tape, because they specifically mentioned that the orders they were returning to me we could get from the other fellow, is the exact words that they use.

* * *

[Record pp. 2962-63]

"Q. What were your average purchases for stock purposes during 1952, by months, now? A. I couldn't answer that question. We purchased approximately I would say 3 thousand dollars, which would be roughly speaking $25.00 [$250.00] a month, would it not?"

Then page 26:

Cross-Examination

"Q. You have testified on direct examination that you didn't replace Minnesota Mining tape with other tapes for Reynolds? Is that correct? A. No, I think that is something wrong there. I will answer it this way: We have a contract with Reynolds to supply them with tape. We have given them various price lists, or copies of prices we can sell them the different makes of tape at, which there is one other line which has never been mentiond here, which make not cellophane tape but certain types of paper tapes, and when we would receive an order from Reynolds for Minnesota Mining tape we have tried to give them the type

of tape that they have always asked for in their purchases. If they have asked for Permacel tape, Textel tape, we have given them Textel. Whenever they have asked for Tuck tape, we have furnished whatever their purchase orders have called for."

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Direct Deposition Testimony of Allen B. Commack, North Carolina Stationer, called by Technical

[Record p. 2965]

"Q. Will you please state your name. A. Allen B. Cammack.

"Q. Where do you reside, Mr. Cammack? A. Burlington, North Carolina.

"Q. And what is your age, Mr. Cammack? A. 55.

"Q. What is your business? A. I operate a stationery and office equipment store in Burlington, North Carolina.

"Q. And do you do business under some name? A. We are known as Cammack Office Supply.

"Q. Is that located at 521 West Front Street in Burlington, North Carolina? A. Yes, it is.

"Q. How long have you operated that business? A. I began in November of 1944 with a partner and I succeeded the partnership and have been operating it continuously since that day in November, 1944.

"Q. What products do you sell? A. Well, we sell the usual stationery and office equipment line, record-keeping books and sheets, chairs, tables, desks, stationery.

"Q. Do you sell tapes—for instance, adhesive tapes? A. Yes, we sell acetate tapes, tapes that you use in fastening boxes and packages.

"Q. For how many years have you been selling such tapes? A. Since 1944 and early 1945.

"Q. Whose tapes did you first begin to sell in your store? A. Well, we sold Minnesota Mining and Manufac-

turing Company's cellophane tapes. We sold some of their drafting tapes and masking tapes in the small rolls and later they put a little electric tape on the market in small rolls and we sold that and we sold Industrial Tape products known as Texcel.

"Q. Now how many years did you sell Minnesota Mining and Manufacturing Company? A. Either when we opened in November of 1944 or early 1945 when we carried a stock continuously up to October of 1953.

"Q. Well, now did you handle Minnesota Mining and Manufacturing tapes exclusively for any period of time, do you remember? A. Well, yes. A man by the name of Davis came in and we were supposed to be handling Minnesota Mining, and the other stationery business across town had the Texcel line, that was probably 1946 or 1947.

"Q. And then what happened? A. They changed their field man, I don't remember his name. He called on us and continued to sell us Minnesota Mining tapes but he also called on the other stationery men in town and sold them the Minnesota Mining products.

"Q. Then what did you do? A. Well, I continued to buy Minnesota Mining from him and I bought some Texcel.

"Q. And you handled both lines? A. I handled both lines from time to time but the majority of my stock was Minnesota Mining.

"Q. Did you handle masking tape, etc.? A. Most of the tapes in the sizes that is offered and sold through a stationery store: 1296 inch lengths, and so on and lines of various widths.

"Q. Now you mentioned 1953. What happened in 1953? A. Well, I was called upon by another new man by the name of Gensure and Bill Price, William Price, who had been the man that Gensure replaced. They came to my store.

"Q. Who are those people? A. They represented Minnesota Mining because they both had appraised and serv-

iced our account for better than a year and Gensure had taken his place sometime after April of 1953. They came to the store on a sales visit, saw the products of Technical Tape Corporation on our shelves, that tape is known as Tuck tape. They asked me if I was going to handle it, I said, 'Yes, I am. I have bought it and I am going to sell it.' They wanted to know if I realized the suit pending in which the Minnesota Mining Manufacturing Company was suing the Technical Tape Corporation for patent infringements; that I as a dealer handling the products of this company, they called it Tuck tape, would be made a party to the suit and would be made liable for a percentage of damages if such were assessed. I told him I didn't know anything about any such suit pending.

"Q. When was that meeting, do you remember? A. Approximately—as near as I can recall it was in October of 1953. It was sometime in the fall or it may have been later than that.

"Q. Who was present at that meeting besides Mr. Price and Mr. Gensure and yourself? A. My son, Allen B. Cammack, Jr., was in the room at the time and was with us when this conversation took place, part of it. They were there quite a while. They stayed with us some twenty or thirty or forty minutes as was their custom, they usually visited with the salesmen and talked to them. The relationship was friendly between us.

"Q. Now after that meeting that you mentioned in October of 1953 did Mr. Gensure call on you again? A. The next time I saw him to remember it was sometime in January or February of 1954. He came to see me.

"Q. What happened then? A. Well, Jim is a pleasant individual and he came in and went through the usual formalities and I asked him what he wanted. I said, 'If you are in here looking for business, the last time you

were in here you said you were going to sue me. If you are going to sue me I don't want to do any business with you. If you are not I will buy some of your tape and dispensers.'

"Jim smiled and laughed and said why sure he wanted an order. He went out in our display room and began checking our stock and made out a list that I was short of. I finally said, 'Jim, I will buy what I want. I need some dispensers and I need some of the 15-cent or 25-cent sizes of Scotch tape that comes packed a dozen to a package and you buy six or twelve of them and get the maximum discount. I gave him this order and he left and came back the next day, came in and said he had bad news.

"I made some comment like this, 'Well, maybe it isn't so bad.'

"He said, 'We have had a meeting about you.' He mentioned something about district men which I don't remember, the names of the district men, and he said, 'We have had a meeting about you and we have called St. Paul, Minnesota,' and wanted to know if I had received a telephone call from St. Paul, Minnesota, anybody with the Minnesota Mining Manufacturing Company. I told him I hadn't. He said, 'Well, we can't sell you,' and gave me my order back.

"Q. Well, has Minnesota Mining and Manufacturing Company sold you any tape of any kind since then? A. Nope.

"Q. What were the relations between your company and Minnesota Mining and Manufacturing Company from the time you started selling its products until you began to handle and sell the products of Technical Tape Corporation? A. They were good. Their man came to our store, sometimes our salesman made calls with them (which was part of their procedure in North Carolina to go out and call on accounts and talk about the tape and leave samples and we were selling to textile mills and some of these mills

buy a sizable quantity from us, 500 or more rolls at one time, and some of them buy higher than that).

"Q. And what happened as far as your relations with Minnesota Mining and Manufacturing are concerned after you took on the sales of Technical Tape Corporation? A. Well, they broke off after this October when they came in this October and said they were going to sue me. I told them that I certainly wasn't going to do business with a person who was threatening with a suit, I told Mr. Gensure.

"Q. Approximately what have your purchases averaged during the period that you were handling Minnesota Mining and Manufacturing tapes? A. Well, we started buying back in those days with the war on we would buy 36 rolls and get a maximum discount or we would buy more. We were paying them $50 or $60 or $100 a month at a time or $1000 a year, that was the order the last of 1950, 1951, 1952.

"Q. What about the prices at which you sold the tapes that you bought from Minnesota Mining and Manufacturing Company? A. Well, they had a published price list that gave the prices for one roll, prices for the next break on some things was a dozen and on other sizes was 36, I believe. We took the discount, the company always got their money, full price.

"Q. Do you mean you paid promptly? A. We paid promptly, yes. I noticed Industrial Tape, which we call Texcel, and the Minnesota Mining prices always were identical for the same sizes and lengths and also changed at exactly the same time and had the same dates on them for a period of years until I ceased to do business with them. We had to buy it in the quantities they set. We got the maximum discounts, first it was 36 rolls and then they moved it to 72 rolls and you didn't get your maximum discount unless you bought 72 rolls or its equivalent, according to widths."

Excerpt from Cammack Cross-Examination

Then he says he is on the staff of the National Stationery and Office Equipment Association. I think he is on the committee of that now. He used to be on it.

That is all of the direct. I will skip through this here and see if I have marked anything in the cross. Yes, I have.

He says he has two outside salesmen. That is on page 71. And he is asked on page 72, line 7:

"Q. Did you ever instruct your salesmen to tell the customer that Tuck brand tape was just as good as Minnesota Mining cellophane tape. A. We instructed them to tell the customer that Tuck tape would do the job and that is the way they have been selling it.

"Q. Then to that extent you did give them instructions to mention Technical Tape? A. Just like they mentioned Scotch tape and Texcel tape."

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Excerpt from Cammack Cross-Examination
Technical Exhibit 144

[pp. 69-71]

• • •

Q. It is a fact that, at the time of this last visit the only brands of cellophane tape on display in your store were Tuck tapes and Texcel? A. No, that isn't a fact.

Q. I am not talking about dispensing equipment now, just tapes. A. No, we had Minnesota brand in there and we had some Texcel in there and we had some Tuck in there. In fact, we still have got some of it in there.

Q. In October of 1953 what would you say that your stock of Minnesota Mining and Manufacturing tape was? A. I don't know.

Q. Was it small or large? A. I know I was out of the fifteen and twenty-five cent rolls and in February I ordered some at that time and I had a nice amount of the Scotch Christmas tape on hand and I still have some of it on hand today that didn't sell during the December sales.

Testimony of R. V. Arvey, Chicago Distributor

Q. Excluding the Christmas tapes, what would your estimate be of how much Minnesota Mining tape you had in stock as of October, 1953? A. I don't keep that type of inventory, I just go out and look at it and if it is getting low I reorder.

Q. You don't keep a good running inventory? A. Just a look type.

Q. How often do you check that. A. At various intervals.

Q. Do you have outside salesmen in your establishment? A. Two.

Q. Did you ever instruct them to aggressively push Tuck tape? A. No.

Q. Do you mean from 1945 to 1953? A. From October, 1953 or sometime shortly before that until February of 1954, as long as we had Tuck tape we sold it and used the same amount of effort; on it as Scotch tape, we pushed everything.

• • •

Direct Deposition Testimony of R. V. Arvey, Chicago Distributor, called by Technical

[Record pp. 2661-69]

"Q. Can we have your full name and address, Mr. Arvey? A. Reuben V. Arvey, 200 East Chestnut Street.

"Q. That is in Chicago? A. Chicago.

"Q. In what business are you engaged? A. Office supply, office furniture.

"Q. With what company are you? A. Crown Office Supply Company.

"Q. And that is located at what address? A. 218 South Wabash Avenue, Chicago.

"Q. Is that a corporation or what? A. Illinois corporation.

"Q. Do you hold any office in that corporation? A. I am president of the firm.

Testimony of R. V. Arvey, Chicago Distributor

"Q. It has been testified that your company sells tapes of various kinds. Is that correct? A. That is right."

"Q. It has been further testified that your company sold transparent cellophane tape purchased from Minnesota Mining & Manufacturing Company since the early 1930's. Is that your recollection? A. Well, when they started in business, I think we were one of their first accounts.

"Q. And you began the sale of masking tape and possibly other tapes purchased from Minnesota Mining sometime in the late 1930's. Is that correct? A. I believe so.

"Q. Do you now purchase any tapes of either the transparent type or of the opaque masking type from Minnesota Mining? A. Not direct from Minnesota Mining, no, sir.

"Q. When did your purchases from Minnesota Mining cease? A. When did it cease?

"Q. Yes. A. December of 1952.

"Q. Can you tell us the circumstances surrounding this cessation of purchases from Minnesota Mining? A. In the early part of December, if I remember rightly, December 5th, the salesman that had always called on us came in—his name was Cleary.

"Q. C-l-e-a-r-y? A. I believe so, Robert Cleary—

"(Continuing)—came in with the sales manger of the cellophane division and brought me one of our mailing pieces, which I see on the table there."

• • •

Then the answer continues:

"A. Which he told me they had picked up from some office at 1500 South Western, which happened to be, I know it is Minnesota Mining warehouse building. I don't know—there must be dozens of firms in that building. He told me about how their business fell off with us in the two months previous—how fine it was up to that point, and how unhappy they were that we were handling Technical Tape

merchandise, and before they got through, told me in no uncertain words that we had our choice of buying Minnesota Mining or Technical Tape.

"Q. Who is this other person who came with Mr. Cleary? Do you remember his name? A. I think it was Lowe, if I remember correctly. It was the first time I met the gentleman.

"Q. Then this conversation between you and Mr. Cleary and Mr. Lowe took place around December 5, 1952. Is that correct? A. That is right.

"Q. Can you tell us as close as you can remember the conversation that took place between yourself and Messrs. Cleary and Lowe, and tell us as accurately as you can what you said and what they said. A. Well, when they told us we couldn't buy—we had our choice of Minnesota Mining themselves, of course, I went and told them our relationship with Minnesota Mining, that I didn't think they had the legal right or the moral right or any right to refuse to sell us; that we had always paid our bills, we had a reputation of never losing a discount, and of course they agreed with that.

"They felt that selling Technical Tape was cutting into their business.

"I told them the Technical Tape proposition, that as a dealer in thousands of different items, we were looking for a profit, and Technical Tape showed us a greater profit than we did on Minnesota. We effected a saving to the consumer, that our salesmen were enthused about selling it, we had very few complaints, and that we would refuse to give up Technical Tape under those conditions.

"Q. Did Mr. Lowe and Mr. Cleary take part in the conversation? A. Yes, sir.

"Q. Can you tell us the words that they employed in communicating the information that you have just testified about? How did they express themselves? A. I don't

know how I can put it any clearer, when they told me we have our choice of selling Technical tape or selling Minnesota Mining.

Q. They put it in just those words? A. That is right. There was no question about it, the language that they used—we had a choice.

"Q. Well, he addressed you, of course, as he spoke to you? A. He addressed me. I have never had any dealings —I have seen Mr. Cleary in our office time and time again. I have been more or less taking it easy. I had a heart condition in 1947. I have been working short hours.

"I have been coming down at nine-thirty, going home at four o'clock. I have done none of the buying. I have taken care of certain accounts.

"I have taken care of and helped make decisions of the firm, but I haven't knocked myself out in the conduct of the business.

"They came to me knowing that I was the president of the firm. That is the only way I could figure that.

"Q. Had you invited them to see you, or did they come of their own? A. No, sir. They came of their own accord.

"Q. Did anybody else take part in that discussion besides you and the two representatives of Minnesota Mining? A. Not at the present time, and when they finally got to the end of the conversation and were ready to leave, I called in Mr. Ackerman, who is vice-president of the firm and has charge of our salesmen, has charge of the purchasing, and I had them repeat to him exactly what they told me.

"Q. Did you yourself repeat to Mr. Ackerman the sum and substance of your conversation? A. Yes, I repeated it to him and they didn't deny it. I think they gave him the same story they gave me.

"Q. Then you say that you repeated to Mr. Ackerman the sum and substance—A. I told him what had happened.

Testimony of R. V. Arvey, Chicago Distributor

"Q. Let me finish my question and then you can answer. A. O.K.

"Q. Then you repeated to Mr. Ackerman, in the presence of Messrs. Lowe and Cleary, the substance of your previous conversation with them? A. That is right.

"Q. And they did not deny it, as you just testified? A. That is right.

"Q. Now, what happened after Mr. Ackerman joined the three of you? A. Well, after we got through with the conversation, they were ready to leave, and I went into the elevator with them. We are on the fifth floor, and we have a store on the first floor, and as we got out of the elevator, I was going into the store and I asked them if that was final, and they said, 'Well, we will have to take it up with our home office and we will let you know.'"

"Q. Did they let you know? A. The following Thursday they came back and told me—both Mr. Cleary and Mr. Lowe were back and they told me they were to the factory and the decision they had made the previous Friday was final and we could no longer buy any merchandise from them.

"Q. What was the reason they gave for that decision? A. That we had refused to dump Technical Tape.

"Q. You mentioned they came back the following Thursday. How long was that after your original conversation with them? A. Well, Friday to Thursday is one day less than a week. Six days.

"Q. Have you purchased any products from Minnesota Mining since December of 1952? A. No, sir.

"Q. Have you made any attempts to make such purchases? A. We have."

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Direct Deposition Testimony of Eli Ackerman, Chicago Distributor, called by Technical

[Record pp. 2697-2705, 2711-12, 2717]

"Q. Will you please give us your full name and address. A. Eli Ackerman. Do you want my business address, or—

"Q. Your home address. A. 5619 North Spaulding Avenue, Chicago, Illinois.

"Q. What is the nature of your business? A. We are in the office equipment, furniture and supply business.

"Q. When you say 'we' whom are you referring to? A. Crown Office Supply Company."

* * * *

"Q. Will you tell us more specifically in what type of goods Crown Office Supply Company deals in? A. Well, primarily we are an office supply and stationery house. By that I mean we sell everything used in an office from a pin to a desk, which covers approximately twenty to thirty thousand various commodities.

"Q. Are you in the business of selling tape? A. Yes, sure.

"Q What kind of tape? A. Well, we sell all sorts of tape. We sell gum tapes, cellophane tapes, masking tapes, drafting tapes, and et cetera.

"If you want me to enumerate them, I will keep on going.

"Q. That will be all.

"What have been your sources of supply for all these tapes?

"I shall precede that question first with another question: When did you first begin selling the cellophane tapes and masking tapes that you referred to? A. Well, cellophane tape we first started selling, I believe in—if my memory serves me correctly—back in the early thirties when the Minnesota Mining Company introduced 'Scotch' tape

Testimony of Eli Ackerman

"Q. You are referring now to the transparent cellophane backed tape? A. That is right, but I believe Dennison's have—well, no. Theirs is a glassine tape, a mending tape. Well, we started selling it when we started in business in 1927.

"Q. Well, this cellophane tape you referred to, that has a pressure sensitive adhesive on it so that it can be made to adhere by simple pressure? A. Right.

"Q. Do you understand what I mean by 'pressure sensitive adhesive? A. Yes, I do.

"Q. Now, can you recall approximately in what year early in the thirties you first began selling cellophane tape? A. Well, it was a long time. Let's see—I imagine it might have been in 1932 or 1933, somewhere in there. It might be the latter part of 1932 or the early part of 1933.

"Q. Oh, about twenty years ago? A. Oh, yes, it was a good twenty years.

"Q. Do you recall when you first began selling masking tape? A. Masking tape, this would be possibly the late thirties, I imagine around 1939 or 1940, somewheres around there.

"Q. Do you know which type of tape first appeared on the market, the cellophane tape or the masking tape? A. Well, I would say cellophane was brought to my attention before masking or drafting tape was as an office supply item or stationery's items for resale purposes.

"Q. Then you are quite certain you sold cellophane tape before you sold masking tape? A. Yes.

"Q. What was the source of your supply of cellophane tape and masking tape when you first sold those items? A. One source.

"Q. What was that? A. Minnesota Mining Company.

"Q. Is that the Minnesota Mining & Manufacturing Company; is that their full name? A. Yes.

"Q. Are you presently selling cellophane tape or masking tape purchased from Minnesota Mining & Manufacturing Company? A. Are we presently selling it?

"Q. Well, I will change my question. Are you now purchasing cellophane or masking tape from Minnesota Mining? A. No, sir.

"Q. When did you stop purchasing from that company? A. December of 1952.

"Q. Does that apply both to the cellophane and the masking tape? A. The complete line.

'Q. You mean you purchase other types of tape from them? A. Yes, sir, whatever types were available for distributors in our respective field.

"Q. You mean you handled the whole line of tapes for Minnesota Mining? A. The complete distributors' line.

"Q. And you were a distributor? A. Yes, sir.

"Q. Now were your purchases from Minnesota Mining regular and continuous from the time that you first began to purchase the respective tapes? A. Very definitely.

"Q. Can you give us an idea of approximately the total value of the tapes that you purchased from Minnesota Mining, say—"

"Q. Say, in the years 1950, 1951. A. I would say approximately between thirty to forty thousand dollars per year.

"Q. You were billed by Minnesota Mining in that amount? A. Yes, sir.

"Q. You have reference to the value of all the goods you purchased from Minnesota Mining? A. Correct.

"Q. Can you give us an idea as to the value of the cellophane and masking tapes that you purchased in 1950 and 1951 from Minnesota Mining? A. Well, that would be aproximately 95 and 97 percent of our purchases."

"Q. Who does the buying for your company? A. I do.

"Q. Were you responsible for the purchase of all the goods from Minnesota Mining? A. Yes, sir."

"Q. You stated that around December, 1952, you ceased purchasing tapes and I think you said also other goods from Minnesota Mining. A. That's right.

"Q. Can you tell us why those purchases ceased at that time? A. Why they ceased?

"Q. Yes. A. Well—

And then he continues his answer:

"A. About sixty days prior to the date of ceasing our relationship with Minnesota Mining Company—our business relationship, I should say—we had sent out or circularized our prospective customer list wherein in the circular we incorporated 'Tuck' cellophane tape.

"Q. That is the tape being sold by—A. Technical Tape Company. About the early part of December, we were called on by Mr. Cleary, who was the salesman of Minnesota Mining, and a Mr. Lowe, I believe, who was either the district sales manager or Chicago sales manager. I forget what his correct title is. He had spoken to one of my associates, Mr. Arvey, Mr. R. W. Arvey.

"Later I was asked to go into his office and listen to the conversation he was having with Mr. Lowe.

"Q. Was Mr. Cleary present at that time? A. Yes, sir. Mr. Lowe told us that if we were to continue selling 'Tuck' tape, Minnesota Mining Company would cut us off and not sell us any more.

"Q. Now whom did Mr. Cleary represent? A. Mr. Cleary?

"Q. Yes. A. He represented Minnesota Mining Company.

"Q. And Mr. Lowe? A. Minnesota Mining Company.

"Q. Did you know these gentlemen before that conversation? A. Yes, sir.

"Q. And you knew that they represented Minnesota Mining? A. Right.

"Q. Now did they specify what goods they would refuse to sell you if you continued selling 'Tuck' tape? A. The entire line we had been buying from them.

"Q. Who was it that made that statement with respect to not selling you? A. Mr. Arvey told me that when I walked into his office—that he was told by Mr. Lowe that if we were to continue selling 'Tuck' tape, that the Minnesota Mining Company would cut us off their books.

"Q. In whose presence was that statement made to you? A. Mr. Arvey, Mr. Lowe and Mr. Cleary.

"Q. Was that statement made in the hearing of Mr. Lowe and Mr. Cleary? A. Right.

"Q. Did Mr. Lowe in any way show any disagreement with that statement? A. None whatsoever.

"Q. Did Mr. Cleary say anything in contradiction of that statement of Mr. Arvey? A Nothing whatsoever."

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Cross-Examination

[Record p. 2711]

"Q. What kind of pressure-sensitive adhesive tapes did you sell that you had purchased from Minnesota Mining & Manufacturing Company? A. Well, we bought their line that was available to distributors.

"Q. That is what I am trying to get at. What are they? A masking tape was one? A. Well, their 600 line, which is pressure-sensitive cellophane tape; their 230 line and 201 line, which is masking tape and drafting tape, and their display units; their 100 and 200 series; their 800 line, I believe, is the acetate line, if my memory serves me correctly.

"If I had their catalog sheet here, I would be able to give you more detail."

• • •

"Q. But suppose a customer came and asked for a 'Scotch' brand tape—A. Who insisted on it?

"Q. Yes. A. We gave him 'Scotch' brand.

"Q. You made no susbtitutions? A That is right."

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Cross-Examination Deposition Testimony of Eli Ackerman, Chicago Distributor, called by Technical
Technical Exhibit 142

[p. 77]

Q. Did the Minnesota Mining men ask you at that time to continue selling their line of tapes? A. At this conversation or conference?

Q. Yes. A. That we should continue selling Minnesota Mining? Well, like I say, Mr. Hobbs, [Minnesota counsel] at the conversation, they told us specifically that if we were to continue selling the "Tuck" line of tapes that Minnesota Mining Company would cut us off.

Now, from there on in, you can take it for what it is worth.

Q. You can draw your own conclusions, that is what you mean? A. Yes.

Q. But the Minnesota Mining people wanted you to continue selling their tape instead of the "Tuck" tape, did they not? A. Oh, sure. After all we were still a customer of yours.

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Direct Deposition Testimony of Paul Christensen, Denver Distributor, called by Technical
Technical Exhibit 143

Direct examination by Mr. Kipnis:

Q. Will you please state your name? A. Paul J. Christensen.

Q. How old are you, Mr. Christensen? A. 42.

Q. Where do you reside? A. 2901 Steele Street, Denver, Colorado.

Q. What is your business? A. I am with the Aviation Service Supply Company, Stapleton Airfield, Denver, Colorado; handle aviation, automotive and industrial supplies as a distributor.

Testimony of Paul Christensen—Direct

Q. What is your position with Aviation Service Supply Company? A. Chairman of the board of directors.

Q. Aviation Service Supply Company is a Colorado corporation? A. Yes.

[Record p. 2717]

Q. How long has your company been in business—approximately? A. Nine years.

Q. Have you held the same position with your company during this entire period, or have you held different positions? A. I have held different positions.

Q. What positions have you held with the company during this period? A. In addition to being chairman I am now and have always been treasurer. Also I was secretary-treasurer at one time.

Q. Among the products your company sells do you sell tapes of any kind? A. Yes.

Q. For how long has your company been selling tapes? A. Since our inception.

Q. What brands of tapes have you sold, and what kind? A. Industrial tapes, Technical Tape products, Minnesota Mining & Manufacturing Company products.

Q. What kind of tapes are they; are they pressure, sensitive, adhesive tape? A. Yes.

Q. You handle different tapes? A. Masking tape, cellophane tape, vinyl, polyethelene and cloth tape.

Q. You mention various types of tapes you sold, did you handle the entire line of industrial tape the corporation produced? A. Yes.

Q. And did they make these various types of tapes you mention? A. Yes.

Q. What other names did they use? A. Permacel and Techcel and masking and cellophane and other products.

Q. Did you also sell all the different tapes mentioned as manufactured by Minnesota Mining & Manufacturing Company? A. I have handled masking tape, electric tape, scotch and cellophane tape.

Q. What about Technical Tape Corporation products, what types of tapes of theirs did you sell? A. Cellophane, masking and other products.

Q. Now when you first started in business did you try to make arrangements with Minnesota Mining & Manufacturing Company to handle their line? A. Yes.

Q. What happened? A. They advised us because of the shortage of material and their inability to supply their current jobbers with their requirements they were unable to establish us as a distributor of their products?

Q. And pressure adhesive tape? A. Yes.

Q. Then you took on the Industrial Tape Corporation line; is that right? A. Yes.

Q. After you took on the Industrial Tape Corporation line did anyone representing Minnesota Mining & Manufacturing Company call on you to try to interest you in selling their line of pressure sensitive adhesive tape at various times? A. Yes.

Q. Will you tell us about those calls, and what happened, and give us the history of your relations with Minnesota & Manufacturing Company until you became its distributor? A. After having developed a considerable volume of business with Industrial Tape Corporation products, Minnesota Mining & Manufacturing Company representative on various occasions called and discussed with our company the advantages and possibilities of our becoming a distributor for them and their products.

Q. In those discussions tell us the susbtance of what Minnesota Mining & Manufacturing Company's representative said to you in their efforts to induce you to take on its line of tapes, particularly.

Mr. Hofeldt: I object to that question on the ground that the witness has not yet testified that he was with a Minnesota Mining & Manufacturing Company spokesman.

Testimony of Paul Christensen—Direct

Q. Will you tell us how the Minnesota Mining & Manufacturing Company's representative talked at the time they made their calls before your company finally became its distributor? A. Contacts and discussions were held with Mr. B. M. Flanders, an officer of this company, and myself.

Q. All right now, in their discussion with you what happened? What did they say; what did you do about that, and what did you say to them? A. They pointed out what they believed to be the reasons justifying our handling their products, in particular such points as leader in their field, completeness of their line, research facilities, prestige, and other similar sales points.

Q. What did your company do in response to these requests by the representative of Minnesota Mining & Manufacturing Company that your company take on its line of pressure sensitive adhesive tapes? A. In staff meetings of our company the decision was to not handle Minnesota Mining & Manufacturing Company's products and to remain with present sources because of past favors and considerations.

Q. Now you finally did become a distributor of Minnesota Mining & Manufacturing Company's products, including pressure sensitive adhesive tape; is that right? A. Yes.

Q. Do you know when that was, approximately? A. The fall of '53.

Q. You have handed me some correspondence this morning which I now show you. Can you identify these two letters that I am showing you? A. One letter, which I am examining, is a copy of an original letter to Minnesota Mining & Manufacturing Company, dated September 28, dictated by me, confirming original letter outlining a portion of our distributor agreement in a letter of Mr. W. H. Benson of the Minnesota Mining & Manufacturing Company dated September 25, 1953.

Q. Does that refresh your recollection as to when you became a distributor? A. Yes, it was during this period.

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Q. Now, Mr. Christensen, is it correct to say that Minnesota Mining & Manufacturing Company was trying to sell your company on becoming its distributor for a period of approximately five or six years before you actually took on the line?

• • •

A. Do you wish me to answer Yes or No?

Q. Explain the circumstances. A. During approximately four or five years prior to September of 1953 we were contacted by representatives of Minnesota Mining & Manufacturing Company on several occasions with regard to the possibility of our becoming a distributor of their products.

Q. What finally caused you to arrange for the distribution of Minnesota Mining & Manufacturing Company products in September, 1953? A. At the instance of several customers that we furnished with Minnesota Mining & Manufacturing Company products we believed it advisable to become a distributor of their products.

Q. Now after you became a distributor of Minnesota Mining & Manufacturing Company products including their tape did you purchase tapes and other products from Technical Tape Corporation? A. Yes.

Q. When did you become a distributor of the tape products of Technical Tape Corporation, whether before or after you took on the Minnesota line? A. After.

Q. About how long after? A. I would estimate, without checking the record, three or four months.

Q. How soon after you took on the distributorship of Technical Tape Corporation products did Minnesota Mining & Manufacturing Company representative find out

about it—was it very soon after that? A. I don't have that knowledge.

Q. When was the first time Minnesota Mining & Manufacturing Company's representative talked to you about your handling Technical Tape Corporation products?

Mr. Hofeldt: I am going to object to that question. I think you have been doing an awful lot of leading. I just prefer that the witness do the testifying here.

Mr. Kipnis: Strike the question altogether, and the objection, and I will rephrase it.

Mr. Hofeldt: Leave it stand.

Q. Did anybody representing Minnesota Mining & Manufacturing Company talk to you about the fact that you were selling pressure sensitive adhesive tape manufactured by Technical Tape Corporation? A. Yes.

Q. When was the first time this matter was discussed with you by a representative of Minnesota Mining & Manufacturing Company, approximately? A. In the spring of 1954.

Q. Who acting for Minnesota Mining & Manufacturing Company talked to you about it? A. Mr. Del Styers.

Q. Had Mr. Del Styers called on you before that? A. Yes.

Q. And you knew him as the representative of Minnesota Mining & Manufacturing Company? A. Yes.

Mr. Hofeldt: Again, Mr. Kipnis, I am making the objection that you are doing an awful lot of leading, questioning here by direct e xamination.

Mr. Kipnis: That is proper.

Q. Where did Mr. Styers talk to you as you testified; where was that conversation, on the phone? A. To my office.

Q. What did he say, and what did you say? A. Mr. Styers advised me that it had just come to his attention that we were the successful bidder on a requirement for cellophane tape on Denver Public Schools, and that if we were going to promote Technical Tape products, whose product we bought in this instance, we were, effective as of that moment, no longer a distributor for Minnesota Mining & Manufacturing Company as far as he was concerned, and that he was immediately advising his factory of his wishes.

Q. Had you talked to Mr. Del Styers on the telephone before that conversation? A. On many occasions.

Q. And you recognized his voice over the phone, did you? A. Definitely.

Q. Now what happened after that conversation, did anyone representing Minnesota Mining & Manufacturing Company talk to you about the product of Technical Tape Corporation, after that phone conversation? A. That is two questions. Do you want me to answer one at a time?

Q. One at a time. A. The first part?

Q. Yes. A. The first part of that question is a very general question, what happened after my conversation with him. I will elaborate if you want me to.

Q. Well, give us the facts, tell us the story. A. We encountered difficulty in obtaining shipments and replies to our correspondence with Minnesota Mining & Manufacturing Company. The second—

Q. I forget the second question, and maybe you have too. A. It was regarding with whom did I have conversation. Would you care to read the latter part of the question?

(Question read).

A. Yes.

Q. Who on behalf of the Minnesota Mining & Manufacturing Company talked to you about the product of Technical Tape Corporation after your first conversation with

Mr. Del Styers? A. As I recall, within a short period of time a Mr. Holden visited my office to get the details and statement of our company policy regarding the handling of competitive products.

Q. Was anyone with him at the time? A. No.

Q. When was that? A. I can't recall the date, as there was no occasion to have any recording during this visit.

Q. With whom did Mr. Holden talk on that visit? A. With me.

Q. Will you tell us the substance of the conversation, what he said and what you said? A. He pointed out the advantages of handling his company's products to the exclusion of other manufacturers of the same products, and endeavored to obtain our commitment to handle his products to the exclusion of others.

Q. Did he mention any particular product by name at that time? A. I believe the conversation was involving all products of Minnesota Mining & Manufacturing Company that we were authorized to handle.

Q. Did he mention any competitive products, I mean? A. No.

Q. Following the conversation you just testified to did anyone representing Minnesota Mining & Manufacturing Company again call on you to discuss the question of your selling Technical Tape Corporation products? A. Subsequent to Mr. Holden's visit a Mr. Benson and Holden called on me, at which time Mr. Benson in addition to having other subjects discussed advised me that because of our company activity with competing lines his company did not believe that we could properly represent and promote their products, and that therefore he was obliged to advise us that we were no longer authorized distributor of Minnesota Mining & Manufacturing Company products, and that we might return our merchandise to the factory for credit.

Q. Who was present at that conversation beside you, Mr. Benson and Mr. Holden? A. None other.

Q. Is that the same Mr. Benson who signed the letter dated September 25, 1953, to Mr. Christensen, Exhibit 2 for identification? A. It appears to be.

Q. Do you think it is the same person? A. I did not see him sign it, but I think it is.

Q. Do you know the position he held with Minnesota Mining & Manufacturing Company? A. I believe he was vice president in charge of sales, or sales manager, or sales manager of certain branches, I am not sure, sales manager St. Paul branch sales.

Q. What brand name does Technical Tape Corporation use to identify its tapes? A. Tuck tape.

Q. Was there anything said or done at that meeting which you last mentioned to indicate to you why Minnesota Mining & Manufacturing Company was cancelling out your distributorship? A. As stated before, because of our activity with competing manufacturer's products.

Q. At that time you took on the distributorship did you tell the representative of Minnesota Mining & Manufacturing Company that you would handle Technical Tape Corporation tapes? A. We were very definite in stating our company policy to Minnesota Mining & Manufacturing Company that we were not willing to discontinue Industrial tape products or any other manufacturer's products in consideration of our being appointed their distributor, except as Minnesota Mining & Manufacturing Company products were to become more acceptable with our customers, and desirable to carry in stock. We did indicate that we hoped that the sale of their products would justify our accelerating our purchases with their company.

Q. Was any objection made to anyone representing Minnesota Mining & Manufacturing Company to the fact that your company was selling Industrial Tape corporation's tapes at any time?

Mr. Hofeldt: I object to that question on the ground that it is leading.

Q. I am asking the question. A. Yes.

Q. When— A. Restate the question. I am sorry. Read the question again.

(Question read).

A. No—correction. I might elaborate on that last question. Is that agreeable?

Q. Yes, you go ahead and answer.

Mr. Hofeldt: If it is answering the question. It is objectionable if it is not.

The Witness: A single word answer would not denote the entire meeting of the minds regarding the question.

Q. In other words, you wish to explain your previous answer? A. Right.

Q. Go ahead and do it. A. It was apparent from the discussions with Minnesota Mining & Manufacturing Company representatives that while they would favor our handling their products exclusively they would not insist that this would be a requirement of our becoming their distributor, and they were aware we were to continue to handle Industrial Tape products.

Q. Was any discussion ever had between you and a representative of Minnesota Mining & Manufacturing Company concerning the question the Industrial Tape Corporation products, and if so, will you tell us what the conversation was, and approximately when it took place?

Mr. Hofeldt: I am again objecting to this question. The whole line of examination is obviously leading.

A. We had many discussions with various representatives of the manufacturers of tapes, and we were of the opinion that Minnesota Mining & Manufacturing Company

were not as concerned with competition from Industrial Tape Corporation as they might be with other manufacturers, because they were participating in some manner of profit or sale of some Industrial tape—in selling some Industrial tape products.

Mr. Kipnis: I will ask the reporter to mark all those at one time, then we may refer to these letters.

Said documents were marked respectively as Christensen Exhibits 3, 4, 5, 6, 7, and 8.

Q. Mr. Christensen, as a result of the conversation you had with Mr. Holden and Mr. Benson you testified to, did you understand to which particular brand of tape these people had reference when they were discussing the matter with you? A. No doubt.

Q. Which brand of tape did they refer to?

Mr. Hofeldt: I object to the question that you are asking him, as analysis of what was in somebody else's mind.

A. I was going to answer that—

Mr. Kipnis: I am asking his understanding of the conclusion he arrived at from what was said and done at that meeting.

The Witness: Would you read that question back?

Q. (Question read as follows: Mr. Christensen, as a result of the conversation you had with Mr. Holden and Mr. Benson you testified to, did you understand to which particular brand of tape these people had reference when they were discussing the matter with you?)

Mr. Hofeldt: I object to the question. You are asking him what was understood by a representative of Minnesota Mining & Manufacturing Company.

Q. You may answer the question I am asking you, your understanding, not what—

Mr. Hofeldt: You are asking his understanding of what was in the mind of the Minnesota Mining & Manufacturing Company.

Mr. Kipnis: I am asking what his understanding was as a result of the conversation that went on, and the things that went on at that meeting. You may answer the question.

A. I assumed in my mind, and there was no doubt in my mind, that the gentlemen were talking about Technical Tape Corporation products.

Q. Will you explain why you assumed that? A. Because no objection was raised to our activity with the one other manufacturer's products which we handled prior to becoming distributor for Minnesota Mining & Manufacturing Company, and the conversation on the phone with Mr. Del Styers and Mr. Holden preceding the meeting with Mr. Benson.

Q. Now after the meeting you had with Mr. Benson and Mr. Holden what happened with respect to this matter of your acting as distributor for Minnesota Mining & Manufacturing Company tapes? A. No further shipments were received from Minnesota Mining & Manufacturing Company. Within a week a representative of Minnesota Mining & Manufacturing Company from Kansas City, whose name I do not recall, called on us and solicited business from us on their electrical tape, and after advising him of our meeting with Mr. Benson and Mr. Holden, and their advising us we were no longer distributors, this representative said that as far as he was concerned, his division con-

sidered us a distributor, and he would accept our order until he was advised not to do so.

Accordingly, in my letter of March 5 to Minnesota Mining & Manufacturing Company at St. Paul, Minnesota, I requested a decision as to whether they would accept orders for electrical tape, and a reply by letter dated March 15 signed by J. T. Donahue advised us that Mr. Benson was speaking for their electrical tape branch.

Q. Mr. Christensen, you have in your hand some correspondence; will you go through those letters and identify them and tell us what each one is? A. Exhibit No. 3 is a copy of my letter to Minnesota Mining & Manufacturing Company dated March 5, which I dictated and signed.

Exhibit No. 4 is a copy of Mr. J. T. Donahue's reply to Exhibit 3.

Q. For whom was Mr. Donahue acting? A. Minnesota Mining & Manufacturing Company.

Q. What is the date of Exhibit 4? A. March 15, 1954.

Exhibit No. 5 is a letter from Minnesota Mining & Manufacturing Company dated March 17, signed by L. R. Kastner, concerning credit for returned goods per authority of Mr. Benson and Holden.

Exhibit 6 is a letter from Paul J. Christensen to the Minnesota Mining & Manufacturing Company dated March 26, 1954, contesting the deduction from our credit memorandum of a 25 per cent handling charge, since the return of this merchandise was for the convenience of Minnesota Mining & Manufacturing Company, and at their request.

The credit was subsequently received as a result of my March 26 letter. No further reply was made to the letter.

Q. And the last letter, will you identify it? A. Oh, excuse me. Exhibits 7 and 8 is a copy of a letter dictated and signed by me dated March 26, 1954, to Technical Tape Corporation at Burbank, California, in which I outlined the facts regarding Minnesota Mining & Manufacturing Company distributorship cancellation.

Q. You spoke of returned merchandise. Why did you return merchandise to Minnesota Mining & Manufacturing Company? A. Because we were replenishing our stock and no longer to be a distributor, so we had no reason to retain their merchandise in our inventory.

Q. At whose request did you return it? A. Mr. Holden and Mr. Benson.

Q. Generally, what type of merchandise did you return? A. Abrasive masking tape. We retained a portion of the merchandise in our stock that we knew would be sold to would be customers.

Q. These letters and documents which you submitted here this morning, Mr. Christensen, Exhibits 1 to 8 for identification, are these letters you received or sent in the regular course of business? A. Yes.

Q. And can you tell me whether they are the actual copies taken from your files or photostats of same? A. They are.

Cross-Examination

* * *

Q. How long have you handled Technical Tape products? A. Oh, I would have to check the file to see the first invoice, but it would occur to me it was in the fall of 1953.

Q. When did you start handling Minnesota Mining & Manufacturing Company products? A. I believe, to the best of my recollection, it was August or September, Fall of 1953, however, prior to the handling of Technical Tape.

Q. You distributed Minnesota Mining products then prior to your distributorship of Technical Tape. A. Right.

Q. If that is what the relationship was. A. Correct.

Q. Now as I understand your direct, you first tried to get Minnesota Mining to take you as a distributor; is that correct? A. In the fall, I believe it was, of 1945 or in the spring of 1946, I would have to check the record to see when we first went in the business.

Q. Was that because there was a demand for Minnesota Mining products? A. Yes, sir.

Q. And then they came back to you later to get you to become a distributor? A. Yes.

Q. How was that carried on, by what medium; did they contact you then and— A. Personal contacts by their representatives.

Q. You did not approach them to become a distributor; they approached you? A. Yes.

Q. They approached you? A. Yes.

Q. You said in your direct that you had had a considerable volume of business in Technical Products— A. Let me—

Q. I have not finished. A. Go ahead. Sorry.

Q. What was the largest volume per month that you had of Technical products prior to the time you became distributor for Minnesota Mining & Manufacturing? A. Oh, the largest month was approximately $7,000.

Q. Do you recall who it was of Minnesota Mining that approached you to become a jobber? A. In the last or first instance?

Q. In the last instance. A. Benson.

Q. Mr. Benson? A. Yes, sir.

Q. What was his position with Minnesota Mining, if you know? A. Sales representative.

Q. Do you know Mr. R. J. Fitzgerald? A. Yes.

Q. What is his position? A. Sales representative for Minnesota Mining & Manufacturing Company.

Q. Was he at the time you became a distributor and immediately before? A. I assume so.

Q. Did you have any conversation with him about becoming a representative for Minnesota Mining? A. Yes.

Q. Who initiated those conversations? A. He called at our office.

Q. You have identified, Mr. Christensen, Exhibit No. 2, letter of September 25, 1953, from W. H. Benson, signed

"Wally", to Aviation Service Supply Company, Stapleton Airfield, Denver, Colorado, attention: Mr. Paul Christensen, Sales Manager. I refer you to this paragraph:

> "Dear Paul: First, let me say thanks for both Dick FitzGerald and me for your interest in handling 3M products."

Do you see that? A. Yes.

Q. The next paragraph reads:

> "We are going through the necessary formalities here prior to the final decision on your request for a jobbing arrangement on our abrasives, automotive adhesives and masking tape products. Before a final decision is reached, we would like to confirm our discussion of last Friday to make sure that we are in full agreement."

Did you receive that? A. Yes, sir.

Q. Are those statements substantially true, it was your interest in handling Minnesota Mining products and your request for a "jobbing arrangement"? A. I would interpret those provisions in the letter as reflecting the general attitude of Minnesota Mining & Manufacturing Company throughout our negotiations.

Q. They do accurately reflect that? A. Would you read my answer there? (Answer read.) I believe my answer is correct as stated.

Q. You never confirmed that opinion of Minnesota Mining that you requested them to become a jobber? A. I would have no objection.

Q. Mr. Christensen, I would like a "Yes" or "No" answer to me, then you can explain if you want. A. Will you restate the question?

Q. Did you ever confirm Minnesota Mining's attitude that you requested the distributorship as your own understanding of the negotiations? A. In which instance?

Q. In the last instance, in relation to finally becoming a distributor? A. I don't believe that question can properly be answered by Yes or No.

Q. I think it is full susceptible to a Yes or No answer.

Mr. Kipnis: If the witness does not want to answer Yes or No, he can explain.

Mr. Hofeldt: I first want a Yes or No answer, then he can explain it. I think it is perfectly proper.

Mr. Kipnis: No, it is not proper, when the witness says he cannot answer the question Yes or No, he has the right to state that, and if you want to know why you can ask him why. Some questions just can't be answered yes or no.

Q. All right, I will ask you this question: Did you ever confirm the statements contained in this letter Christensen Exhibit 2? A. May I see the Exhibit? (Witness examines.)

Q. I note you are now reading Christensen Exhibit 1; is that correct? A. Right.

Q. Will you answer my question? A. May I read the document first?

Q. I would prefer you answer it on the basis of your recollection first, if he has any recollection.

Mr. Kipnis: I think you ought to let the witness examine it. I am just telling the witness his rights if he does not recollect the facts. We want the facts and nothing but the facts. Now you have a right to reply, Mr. Christensen.

Mr. Hofeldt: If he has no independent recollection—

The Witness: Will you please repeat the question?

Testimony of Paul Christensen—Cross

Q. (Question read as follows: Did you ever confirm the statements contained in this letter Christensen Exhibit 2?) A. The general provision.

Q. Would you please answer the question Yes or No, then you can explain anything you wish. A. The general provision of the letter referred to was confirmed in my letter of September 28.

Q. Which is Christensen Exhibit 1; is that correct? A. Right.

Q. So the answer to my question is Yes?

Mr. Kipnis: Read the question back again.

Mr. Hofeldt: Will you read the question back to the witness?

(Question re-read.)

The Witness: What was the reply?

Mr. Kipnis: What is the next question?

Mr. Hofeldt: That the answer to my question was Yes.

The Witness: I believe that the provisions of my letter of the 28th, Exhibit No. 1, are self-explanatory.

Q. Then you will stand on the letter of September 28, 1953, Christensen Exhibit 1, as your answer? A. May I see the exhibits again? (Examines.) In order to further qualify—

Q. Do I take it that you can't answer my last question? A. No.

Q. Then will you answer it Yes or No, please?

Mr. Kipnis: Read the last question again.

Q. (Question re-read: So the answer to my question is Yes?) A. No.

Q. All right. I can ask another question. Then your letter of September 28, 1953, Christensen Exhibit 1, does not state the facts? A. Does not state all the facts.

Testimony of Paul Christensen—Cross

Q. You do not in that letter Christensen Exhibit 1 take issue with anything found in the letter of September 25, 1953, Christensen Exhibit 2, do you? A. I found no reason to take issue at the time the letter was written.

Q. Then the answer to my question is Yes—there is nothing in Christensen Exhibit 1 with Christensen Exhibit 2? A. Repeat the question.

Mr. Hofeldt: Would you read it back, please? (Question read, and re-read.)

A. No, unless I am confused in the manner in which your question is stated.

Q. Prior to the time that you entered into distributorship agreement with Minnesota Mining had you been asked by any of your buyers of products for Minnesota Mining products? A. Yes.

Q. That demand existed right up until the time that you became distributor. A. At various times.

Q. But it did continue, was continuous up to that time? A. Yes.

Q. And it continued during the time you were the Minnesota Mining & Manufacturing Company distributor? A. Yes.

Q. That the customer would come in and ask for Minnesota Mining products? A. Yes.

Q. Did you mention to any Minnesota Mining representative at the time of those last negotiations for a distributorship agreement that you had had a $7,000 a month volume of business? A. Yes.

Q. To whom was that? A. I do not recall the exact representative. I am sure they mentioned it.

Q. Would it be Mr. Fitzgerald? A. It could be.

Q. If he says it is you would not deny that? A. I have no reason to deny it.

Testimony of Paul Christensen—Cross

Q. Where is Technical Tape's office in the City of Denver? A. I don't know.

Q. Do you have more than one phone here? A. We have four phones.

Q. Would you give me the numbers of them, please? A. Florida 2391, 2392 and -293 and -94.

Q. Do you have any phone here Florida 5-8909? A. Not to my knowledge.

Q. Do you have a phone book here for the City of Denver A. Yes. (Produces.)

Q. In the current issue of the Metropolitan Denver Telephone Directory, Spring of 1954, I refer you to page 485, and I have encircled something there I would like for you to read into the record. A. "Technical Tape of California, Ind., tapes, Stapleton Airfield, Florida 5-8909."

Q. If I were to call that number would I call this office? A. Let us call the number and find out what happens.

Q. All right.

Mr. Kipnis: Let the record show that the witness dials Florida 5-8909, and hands the phone to Mr. Hofeldt.

Mr. Hofeldt: (on the phone) What office is this, please—what office is this?

• • •

Mr. Hofeldt: My name is John Hofeldt. I am from out of town—all right. Thank you.

Mr. Kipnis: Will you state for the record what the other party on the line said?

Mr. Hofeldt: It was the residence of Mr. Don Sigmeyer.

Q. Does Mr. Sigmeyer have an office in this building? A. No, sir.

Q. Do you know Mr. Sigmeyer? A. Yes, sir.

Q. And they have no office here on Stapleton Airfield; is that correct? A. Not in our place of business.

Q. But they do have an office here? A. I do not know.

Q. Do you know Mr. Sigmeyer? A. Yes, sir.

Q. Where does he have an office? A. I don't know.

Q. What is the spelling of that name? A. I do not know. I think it is Seickmeyer. I may be wrong.

Q. Does he live here in Denver? A. I guess he is on the road most of the time, as I understand it, but I think he does maintain a Denver residence or room.

Q. At the time you became a distributor to Minnesota Mining & Manufacturing Company did you put in a stock of tape? A. Yes.

Q. Approximately of what value? A. I believe our initial order was approximately $500.

Q. Do you know what your total volume in tapes of all kinds is per month—or was per month, first?

Mr. Kipnis: When?

Q. Strike that question. At the time you became a representative for Minnesota Mining what was your approximate volume in tape sales? A. Per month?

Q. Per month. A. I would estimate the volume to be approximately $4,000 per month.

Q. And did that volume continue after you became a representative of Minnesota Mining? A. Yes.

Q. During the entire time you were sales jobber for Minnesota Mining what were your total purchases of Minnesota Mining products—approximately? A. I do not know but I would estimate them to be between $1,000 and $2,000.

Q. Was any of that tape returned to Minnesota Mining? A. I would have to check the records—I don't believe any of it was returned, but I would have to check the records.

Q. But your total purchases from Minnesota Mining were in the neighborhood, and I mean now the total pur-

chases during the entire time when you were sales representative or sales jobber of Minnesota Mining—your entire purchases were between $1,000 and $2,000? A. The $2,000 represents invoices to us covering shipments and not total purchases, as considerably more purchase orders were issued than material actually shipped and billed.

Q. What were your entire sales of Minnesota Mining & Manufacturing Company throughout the entire period that you were a distributor or jobber for them? A. I would estimate that the sales for the relatively short period of time during which we were authorized distributors of Minnesota Mining & Manufacturing Company were not in excess of $2,000.

Q. Would it be incorrect to say that it was considerably less than $2,000? A. I would have to check the records to know the exact amount. My honest opinion would be that it would be between $1,000 and $2,000.

Q. Would it be correct to say that your entire sales during that period amounted to $236? A. I would have to check my records to verify that amount to see. I would say that that figure would be incorrect unless they were taken right from our records.

Q. In the short period that you were representative for Minnesota Mining, it was approximately six months, was it not? A. I would say that that was substantially correct, from the time of the initial negotiations through the time of the return of the merchandise for credit.

Q. You started out as a representative of Minnesota Mining about September 28, 1953, did you not? A. I would say that the negotiations, contact of their sales representatives were fall or summer of 1953.

Q. And about when did you become distributor? A. I would have to check the records. I believe that we became a distributor and placed our first order for electrical tape in April or May, 1953.

Testimony of Paul Christensen—Cross

Q. You cannot give me the date that you became authorized distributor for Minnesota Mining & Manufacturing Company? A. May I check my files and see if copies of invoices are readily available, which would reflect the date that they considered us as approved, and began shipments?

Q. Well, let me submit to you Christensen Exhibit No. 1; does that refresh your recollection? A. Exhibit No. 1 is in reply to September 25, and I believe is self-explanatory.

Q. Yes, I realize that, but I was wondering if that exhibit refreshed your recollection as to when you became an authorized distributor of Minnesota Mining? A. Not necessarily, no.

Q. Was it about that time? A. I believe that we were receiving merchandise and shipments and invoices before my letter of September 28.

Q. So you were an authorized distributor prior to that time—September 28, 1953? A. I do not believe that there is or was any particular document that establishes a definite date of our becoming an authorized distributor. What we were primarily interested in was the receipt of merchandise.

Q. Mr. Christensen, would you check your records, and I think if it is all right with you that you can refer those records of photostat copies of those to Mr. Kipnis for inspection as to the date that you became an authorized distributor of Minnesota Mining, and also as to the full dollar value of your sales of Minnesota Mining & Manufacturing Company products during the time of your authorized distributorship?

Mr. Kipnis: Can you give him that?

The Witness: No, I cannot.

Mr. Kipnis: If you can do it conveniently it would be good to comply.

Q. If you will have that information, see if you can furnish the total volume of goods ordered. A. I believe

that provided the documents have not been removed from our files for any reason, I could obtain without considerable work and difficulty the total amount billed us by Minnesota Mining & Manufacturing Company. To determine the total sales would require detailed analysis on each sales book, which would be impracticable.

Mr. Kipnis: I imagine Mr. Hofeldt is interested in your purchases.

(Discussion off the record.)

Q. To go back on the record, I want to ask this question: Would the records of total purchases by you from Minnesota Mining of their products minus the amount of your return to Minnesota Mining reflect your total sales volume during the period of your authorized distributorship? A. I believe your deduction is substantially correct.

Q. And therefore you believe we could determine that from Minnesota Mining records? A. Not being in position to examine those records, I cannot vouch for their accuracy.

Q. Can you definitely state that the amount of $236 as representing your entire sales of Minnesota Mining products during the period of your distributorship is incorrect? A. I would say offhand it is.

Q. Can you definitely state it is? A. Yes.

Q. It is incorrect? A. Yes.

Q. What is your best recollection of your sales of Minnesota Mining products during the period of your distributorship? A. I would have to check the records, but I would be surprised if they were not in excess of a thousand dollars.

Q. During the negotiations leading up to your becoming authorized distributor, or Minnesota Mining representatives, in those negotiations did you ever express the thought that your company would be unable to give Minnesota Mining account the volume on tape products which they would expect from a jobber? A. Yes, sir.

Testimony of Paul Christensen—Cross

Q. After you became authorized distributor of Minnesota Mining products did sales representatives of Minnesota Mining call on you frequently? A. Occasionally—not frequently.

Q. Do you have any records of those visits? A. No, sir.

Q. Do you recall whether they called on you about 18 times during that period? A. They may have.

Q. Do you have any outside salesmen? A. Yes, sir.

Q. How many do you have? A. At this time, or then, or at what period?

Q. At this time, first? A. Five.

Q. At the time you became an authorized distributor how many did you have? A. I believe that we had seven at some time during the time we handled Minnesota Mining & Manufacturing Company products.

Q. Were you aware that as to transparent cellophane pressure sensitive adhesive tape that Minnesota Mining had a patent on it? A. I am not aware that it had. I had no reason to consider the fact.

Q. Were you aware of that at the time that you took on—or you began distributing Tuck brand tapes? A. I believe that there was some discussion.

Q. Is that your answer? A. No—period.

Q. Discussion by whom? A. Minnesota Mining & Manufacturing Company men.

Q. With any Tuck representative? A. Yes.

Q. Did they tell you that this patent had been previously adjudicated valid and infringed in lawsuits in the Seventh Circuit? A. I do not recall the details of the discussion. I had no reason to question it.

Q. You knew that this patent had been in litigation, however? A. Not until after arrangements had been made to handle the Tuck Tape.

Q. Did you know that at the time that you submitted the bid on the basis of Tuck tape, to the Denver School Board? A. I was aware that there were some legal entanglements or difficulties.

Q. But my question is to the effect, did you know at that time that that patent had been previously adjudicated? A. No, sir.

Q. Do you consider Tuck cellophane tape and Scotch brand cellophane pressure sensitive adhesive tape as approximately the same. A. I consider them all tape.

Q. Did you consider those two, either cellophane tape or Tuck cellophane tape and Scotch brand pressure sensitive adhesive as cellophane tape? A. On what I was purchasing it would make no difference what was purchased.

Q. You would purchase them for the same use? A. Right.

Q. What was the approximate volume of your sales of Tuck brand tape during the period of your distributorship with Minnesota Mining? A. Per month, or for the whole period?

Q. Per month. A. I had no reason to check in particular. I would estimate that three to four thousand dollars per month was sold of Tuck products.

Q. Was that tape cheaper—Tuck brand? A. Yes.

Q. Did you push Tuck brand tape on that basis in preference to Minnesota Mining & Manufacturing Company tape? A. Our salesmen were instructed specifically that they were not to sell Tuck tape, Minnesota Mining or Industrial tape products to the detriment of any other manufacturer, and as long as we were selling an account their tape requirements we were not to take a position in favor of any manufacturer—

Q. That they had to take a position in regard to— A. And the fact that this account was being handled by other distributors, they were advised to try and obtain this business.

Q. They were advised to try to sell Tuck tape? A. Whatever they could to obtain that business.

Q. Were they advised to sell Tuck tape? A. Tuck tape, or any other tape that they could sell to that customer—or any other tape.

Q. Did you or your salesmen ever attempt to sell Tuck brand tape to customers on specific request for Minnesota Mining tape? A. Yes.

Q. Did you ever give a customer the Tuck tape when they asked for Minnesota Mining tape? A. When we were unable to obtain delivery from Minnesota Mining & Manufacturing Company on tape we had an order we endeavored to obtain the customer's permission to substitute whatever was available in order to keep the customer from cancelling his order.

Q. Did you ever drop the price of Minnesota Mining tape in order to secure the business? A. Not intentionally.

Q. You did it unintentionally? A. We have no specific knowledge. If there was examples they were unintentional.

Q. But you were selling more Tuck tape than you were selling any other tape during the period of your distributorship of Minnesota Mining? A. Right.

Q. How do you account for that? A. Better price, more sales cooperation from the company and their representative, customer preference.

Q. How did the customer preference arise? A. Through the efforts of the sales representative usually, and also through the desire to save money on tape price.

Q. And your sales representatives also? A. Our salesmen were always encouraging customers to purchase tape.

Q. Tuck tape? A. Any tape.

Q. Tuck tape in preference to any other tape? A. Not especially.

Q. Would your answer be the same if you recollect the price differential? A. Keep in mind that the higher the price for the grades purchased the greater would be the incentive to sell the higher price article if they could obtain the order.

Q. Was your price differential greater on Tuck tape than it was on Minnesota Mining tape? A. Tuck tape's price was cheaper—lower.

Q. Was your profit greater on Tuck tape than it was on Minnesota Mining tape? A. Considerably.

Q. So it was in your interest to push your, or your company's interest, to push Tuck tape in preference to Minnesota Mining tape—correct? A. That is correct.

Q. Then you did push Tuck tape in preference to Minnesota Mining tape; is that correct? A. No.

Q. Even on the basis of price has nothing to do with it? A. Our salesmen were instructed to sell the customer what they preferred. However, if we were not servicing the account with what they were currently purchasing our salesmen were instructed to try to obtain the business.

Q. By selling them Tuck tape? A. By trying to sell them any tape, their present tape or any other tape which we may handle.

Q. You said that Tuck tape had better sales representation? A. I did not say that.

Q. I understood you to say that—is it a fact Tuck tape does not have better sales representative than Minnesota? A. I did not say that.

Q. What is the fact in regard to that? A. We received better cooperation from the Tuck sales representative than other representatives.

Q. Did you ever have any sales meeting with Minnesota Mining & Manufacturing Company representatives? A. We did.

Q. How many? A. I do not know what you would consider a sales meeting, but considering the sales efforts made during various contacts, and one special sales meeting in particular I do recall.

Q. Just one? A. One special sales meeting by appointment. There were many times during their sales representatives visits that a considerable sales story was presented to one or more salesmen.

Q. And had Minnesota Mining tried on several occasions to get you to hold that meeting? A. As I recall there

was considerable effort on both parties to arrive at a mutually satisfactory date to hold a sales meeting.

Q. Were you ever able to arrive at a definite date? A. Yes.

Q. Were you ever slow in paying your bills to Minnesota Mining? A. I believe all bills were paid within the normal terms and in the usual course of business.

Q. Of whose business, yours or theirs? A. Ours.

Q. Isn't it a fact that your October bill was not paid until December 8? A. It may be, I do not know the circumstances.

Q. Isn't it also true that your December bill was delayed until February 4? A. I would have to verify the circumstances to know the circumstances.

Q. You know that to be in accordance with the fact? A. I would not question the accuracy of your statement.

Q. Would you say that it was entirely possible that your January bill was not paid until February 26? A. That is quite possible, but that would still be within the standard terms.

Q. Have you ever extended to any representative of Technical Tape permission for sales representatives to use your facilities here as a base of operations in the Colorado area? A. We would try to use our efforts and our facilities and try to obtain the cooperation and use of those facilities by the representatives of all companies we represent.

Q. Answer the question; give me a Yes or No answer. Isn't it true that you extended and permitted a representative of Technical Tape to use your facilities here at Stapleton Airfield at Denver, Colorado, as a base for his operation? A. We did.

Q. There would be no need for Minnesota Mining to use your offices here, would there? A. They were available. I do not know that they had occasion to use them or not. We would have been happy to have had them.

Testimony of Paul Christensen—Cross

Q. Does Tuck tape representative work out of your office? A. He was in our office a considerable amount of his time.

Q. Did he work out of your office? A. We would like to think that he did. However—

Q. Did he express any—

Mr. Kipnis: Let him finish his answer.

The Witness: We would like to think that he did. However we have evidence to indicate that he was also working closely with other jobbers and distributors.

Q. Do you know the name of such jobbers and distributors? A. Yes.

Q. Will you give them? A. Hale & Perry, Broadway Auto Parts.

Q. Do you profit in any way from Technical Tape Company sales in the Denver area? A. I do not know what you are referring to. Naturally we profit on sales we make in the Denver area on Tuck tape.

Q. Are you Tuck tape representative in this area? A. We are authorized distributor for Tuck tape.

Q. Are there any others in this area that you know of? A. Yes, sir.

Q. Do you supply these other distributors for their requirements? A. If we possibly can we do.

Q. Is there any other source locally for them for their requirements, Technical Tape? A. Definitely.

Q. Where do you get your requirements of Technical Tape? A. Some from New York, some from Burbank.

Q. You order them directly from them? A. Yes, sir.

Q. Do you maintain a stock of goods here of Technical Tape? A. Yes, sir.

Q. Only for your own requirements and those of your sales outlets? A. They are carried in our stock for our customers.

Testimony of Paul Christensen—Cross

Q. Do you order Tuck tapes from any Technical Tape Distributor in this area? A. Only on an emergency basis.

Q. But they order quite frequently from you, do they not? A. Only on an emergency basis.

Q. You are sure of that? A. Yes. We don't get enough of it, I will guarantee you.

Q. In discussion with Benson and Holden had with you they never mentioned Technical Tape Products, did they? A. No, sir—not at the time of our formal discussion. However, Technical Tape was mentioned on many discussions during informal sales meetings between Mr. Del Styre, Mr. Benson and Mr. Holden and Mr. Christensen.

Q. Did you ever send out letters to your customers with statements to the effect that you have no salesmen and this saving of salary is passed on to you, meaning the customer? A. To my knowledge, no letter ever went out over my signature, or any letter authorized, went out in the name of Aviation Service Supply Company.

Q. No authorized letter? A. That is right—I don't know what letters may have gone out. I know I didn't sign any.

Q. It is possible that they did. A. Oh, certainly, it is possible. We did not authorize it, and to my knowledge no letters went out.

Q. With regard to Christensen Exhibits 7 and 8 how come you directed a copy of that letter, or the letter itself to Technical Tape?

Mr. Kipnis: Will you show it to the witness?
Mr. Hofeldt: Yes.

A. I did so at his request.

Q. They solicited this information from you? A. Yes, sir.

Q. Did you previously inform them of this incident? A. Very much so.

Q. Did you feel obliged to report that to them? A. Yes, sir.

Q. You have indicated that you were discontented with Minnesota Mining thruout the period of your distributorship; is that correct? A. It wasn't all that was to be desired.

Q. So you were unhappy with them? A. We were not satisfied with the sales cooperation being given us by Minnesota Mining & Manufacturing Company.

Q. Did this have any effect upon your efforts in behalf of Minnesota Mining? A. Subconsciously it probably did.

Q. It had an effect too on your sales of Minnesota Mining products, did it not, by means of your discontent? A. We promote the products of the company that we represent for a profit, and try not to leave our personal feelings enter into the advisability of handling a particular product.

Q. That did not decrease your efforts at all on behalf of Minnesota Mining—your discontent? A. Subconsciously it undoubtedly did.

Q. Undoubtedly did? A. Subconsciously it undoubtedly would have that effect.

Q. It did have an effect? A. We would not know, because we do not have a basis to compare it with.

Q. You have been completely satisfied with Tuck representation, have you? A. Definitely not.

Q. You have not been? A. No, sir.

Q. You submitted an affidavit dated 25th day of May 1954; was that affidavit solicited by any representative of Technical Tape Corporation? A. I believe so.

Q. Do you remember who it was? A. Not the name.

Q. What was his position? A. I do not recall.

Q. Was he an attorney? A. I believe he was.

Q. Did he draft this affidavit? A. Yes, sir.

Q. And you signed it? A. Yes, sir.

Q. What is your estimation of an adequate stock of supply of products such as Tape products of a company

for which you are an authorized representative, or distributor, rather? A. That would be predicated upon the number of customers and the amount of inventory required to service those accounts.

Q. Now specifically as to tape products do you have an estimate? A. It is possible that, to use an illustration, that $500 in inventory would be an excess of inventory that you were not obtaining a sufficient volume of sales. Conversely, it is possible that a $10,000 inventory would be inadequate to service an area where a sales volume in excess was being obtained.

Q. Did you have your salesmen meet with representatives of Minnesota Mining? A. Yes.

Q. How many occasions? A. Formal, one sales meeting as I recall. But on many occasions informally I had a routine visit of their sales representative.

Q. Only one formal one? A. Yes.

Q. Now you have testified at various times as to opinions as to motives of Minnesota Mining representative methods; those were merely opinions? A. If I stated they were opinions I assume they were mine.

Q. And yourself only; do you keep records of your phone conversations? A. No, sir.

Q. You have no record of the various conversations on the phone with Del Styers? A. I have no specific records, no.

Q. Only from recollection? A. That is correct.

Q. Did Minnesota Mining representatives ever express dissatisfaction with the amount of goods sold? A. Definitely, yes.

Q. Did they express any dissatisfaction with your cooperation as to sales meetings with your sales personnel? A. They were not in the form of dissatisfaction so much as they were in urging pressure to our office to sell more of their products.

Testimony of Paul Christensen—Redirect

Q. Were they dissatisfied, or did they express their dissatisfaction as to the volume of sales of Minnesota Mining products? A. They were dissatisfied with the volume they were obtaining.

Q. Did they express dissatisfaction as to your promptness or lack of it in paying your bills owing to Minnesota Mining? A. I do not recall anything other than the routine followup regarding payment of accounts.

Q. They never called on you and expressed dissatisfaction in that regard? A. I believe my original answer will suffice.

Q. You won't answer the question? A. Repeat the question, please.

Mr. Hofeldt: Will you read the question back to him?

(Question read.)

A. They called on various occasions regarding payment of certain invoices, and as to reason why we may be withholding payment. However, I do not recall any particular problem or dissatisfaction concerning the manner of payment.

Q. But were those calls on account of that—concerning payment? A. Yes, there were calls concerning payment.

Q. Did any of the Minnesota Mining representatives who called on you make any statement to the effect that their complaint against you was that you were not performing the function which was expected of one of their jobbers? A. I believe that that was part of the conversation.

Mr. Hofeldt: I believe that is all.

Redirect Examination

Q. When were those statements made to you; was it before or after you took the Tuck tape, that you were not

performing the function which was expected of their jobber? A. I do not recall the particular time. I interpreted those comments as the usual sales effort to obtain a greater volume of business.

Q. Now, Mr. Christensen, did the Minnesota Mining & Manufacturing Company give your company a fair chance to act as distributor for their products? A. No.

Q. Why do you say No? A. The action taken by Minnesota Mining & Manufacturing Company to discontinue our distributorship arrangement was taken before sufficient merchandise had been received and enough time elapsed to properly promote and develop new accounts on their products.

Q. You said on cross-examination that your purchases exceeded the billing of Minnesota Mining Company; is that correct? A. We had several purchase orders that were never shipped.

Q. And that failure to ship occurred, did it not, pretty soon after you became a distributor—or not long after you became a distributor? A. Yes.

Q. Now you spoke of volume of business you did in Tuck purchases, and you mentioned approximately three to four thousand dollars per month? Does that include masking tape as well as cellophane tape? A. Yes.

Q. You said that representatives of Minnesota Mining & Manufacturing Company talked to you about prices. Tell us what they said to you about prices, as nearly as you can, for their product. A. They were very explicit in instructing us that we must conform to all prices and terms sold on their authorized or published price sheets.

Q. Did they tell you what would happen if you did not sell at the prices fixed by Minnesota Mining & Manufacturing Company? A. They said that if we were to remain a distributor we must conform to their published prices.

Q. Mr. Hofeldt asked you to dial Florida 5-6909, and you dialed that number. Did you find out whether that

number was listed in the name of your company? A. It is not listed in the name of our company. It is not listed in the name of our company by our own knowledge. However, you will recall I turned that call over to Mr.—the receiver, over to Mr. Hofeldt.

Q. I just have one question. Mr. Hofeldt referred to your letters Christensen Exhibits 1 and 2. I call your attention to statement you make in Christensen Exhibit 1, reading as follows, "The understandings you have outlined in this letter are such as we arrived at orally and are entirely in agreement with our thinking in the matter."

Now I call your attention to Christensen Exhibit 2 and I refer you to paragraph 3 thereof, which is the letter to which Christensen Exhibit 1 was a reply, is that where the understanding was mentioned, and is that to what you referred?

> Mr. Hofeldt: I object to that question. These exhibits speak for themselves. They are exhibits that you introduced.
>
> Mr. Kipnis: I am asking the witness if the understanding outlined—
>
> Mr. Hofeldt: You are asking his interpretation of that letter, and I object to it. Those letters speak for themselves, and they are your exhibits.

Q. You may answer the question. A. They generally outline and include the majority of the subjects agreed upon.

Q. My point is that that is the only place in the letter wherein the understandings are set forth; is that right?

> Mr. Hofeldt: I object to that. That question certainly should not be answered. Those letters speak for themselves, and you know it.

Q. You may answer the question. A. The third paragraph is the only place to my knowledge where our understandings are outlined in writing.

Mr. Kipnis: That is all. No further questions.

Recross-Examination

Q. Referring to Christensen Exhibit 2, I want you to read into the record the sentence in paragraph number 3 beginning with the words "Secondly" and continue on to the word overlap. A. What paragraph are you referring to?

Q. It is the third paragraph, starts with the word Secondly. A. "Secondly, on our line of Automotive adhesives, you desired to handle 3M products exclusively with the minor exceptions of where the B. F. Goodrich line and 3M overlap."

Q. Now does Tuck Tape have a schedule of prices? A. Yes sir.

Q. Does Industrial Tape have a schedule of prices? A. Yes sir.

Q. Do you follow them? A. No sir.

Q. Did you follow Minnesota Mining schedule of prices? A. We did.

Q. Without exception? A. With possible exception of an error.

Q. There is a possibility that you did not? A. Yes sir.

Q. To your knowledge was there ever a Technical Tape Corporation office here in Stapleton field? A. I don't know what you would consider an office.

Q. An office with a telephone. A. We make our facilities to the phone and encourage the use of our premises as Technical Tape representatives headquarters.

Q. Do you receive any compensation for that? A. No sir.

Q. This Florida 8909 number, is that a number of a phone in this office? A. No sir.

Q. You are positive? A. That is right.

Mr. Kipnis: My understanding on the record, you proved it.

Mr. Hofeldt: May I say on the record I don't know if I proved it or not. I don't know who may have been answering the phone on the other end.

The Witness: Telephone answering service—I assume that that is. If we want to call Mr. Sigmeyer we call Florida 8909 in the same manner you did.

Q. Is that telephone answering service here on the field? A. I don't know whe e it is. I don't believe it is on the field.

Q. Have you ever received any packages thru the mail addressed to Technical Tape Corporation, Stapleton Field, Denver, Colorado? A. I don't believe we ever have. However, if we did we would accept it and we would hold them for the representative, and try to contact him and advise him that they were here.

Q. Did you ever receive any air express packages so directed? A. I do not recall a specific instance. It is quite possible.

Q. Do you know whether the central office of this airport, which I understand is city owned, has a listing for Technical Tape Corporation here? A. I wouldn't know of my own knowledge.

Q. Do you know that when they wish to reach that company they call this office? A. I do not know what occasion they would have to call, but it is perfectly possible that they would.

Q. It is perfectly possible that they would? A. That is right—possible. However, I know of no reason why they

would have occasion to call us for the Technical Tape other than they know we handle their products and would like to have us in contact with the customer phoning.

Q. That is the central office now in the airfield that we are talking about? A. We get calls for many people where the airport office has advised the customer that we handle, or should normally be point of contact for their inquiry.

Q. How do you know what they advise? A. From the customers informing us that the airport said we handle certain items.

Q. The customers call the airport here to get Technical Tape Corporation; is that correct? A. No sir.

Q. They do not? A. No sir. But the airport may advise the customer inquiring of Technical Tape or any other product which they know we handle where to contact us.

Q. Isn't it a little unusual for a customer to contact the airport to get products? A. If they aren't—

Q. Or any other? A. It would be the exception. Most phone calls are placed directly, or phone service to our company office.

Q. But you do get some for Technical Tape Corporation? A. No sir—pardon, correction. They would be the exception. However, it is quite possible that customers might call us, and we encourage them to think of us as the Technical Tape source of supply for this area.

Q. Now you read out of page 45 of your current telephone book that Technical Tape Corporation is advertised as having an office at Stapleton airfield; isn't that correct? A. Yes sir.

Q. And the phone number listed there isn't that of any place in this air base; isn't that correct? A. I believe that to be the fact.

Q. So they must be incorrect in their listing in the telephone book; is that ct? A. You would have to contact them. I did not place it in the phone book.

Christensen Deposition Exhibit 1

Mr. Kipnis: You had nothing to do with that listing?

A. That is correct, I had nothing to do with the listing.

Mr. Kipnis: I offer in evidence the letters, Christensen Exhibits 1 to 8 inclusive.

Mr. Hofeldt: Objected to on the ground that they are immaterial and irrelevant to any issue, anything pending between the parties.

Christensen Deposition Exhibit 1

September 28, 1953

Minnesota Mining & Manufacturing Company
367 Grove Street
St. Paul 1, Minnesota

Attention: Mr. W. H. Benson, Sales Mgr,
St. Paul Branch Sales

Gentlemen:

Thank you for your nice letter of September 25th confirming the subject discussed on your recent visit. The understandings you have outlined in this letter are such as we arrived at orally and are entirely in agreement with our thinking in the matter.

We see no reason why we should not be able to gradually build our stock and enjoy a nice volume of business with Minnesota Mining and Manufacturing Company products.

Yours very truly,

AVIATION SERVICE SUPPLY COMPANY
PAUL J. CHRISTENSEN

PJC:me

Christensen Deposition Exhibit 2

(Letterhead of
Minnesota Mining & Manufacturing Company)

September 25, 1953

(Dic. 9-24-53)

Aviation Service Supply Company
Stapleton Airfield
Denver, Colorado

Attention: Mr. Paul Christianson
Sales Manager

Dear Paul:

First, let me say thanks for both Dick Fitz-Gerald and me for your interest in handling 3M products, as well as the time you spent with us last week.

We are going through the necessary formalities here prior to the final decision on your request for a jobbing arrangement on our abrasives, automotive adhesives and masking tape products. Before a final decision is reached, we would like to confirm our discussion of last Friday to make sure that we are in full agreement.

These were the understandings we reached together: First, on abrasives, you agreed to handle only 3M Coated Abrasive items. This, of course, does not apply to grinding wheels since we don't have a line of grinding wheels. Secondly, on our line of Automotive Adhesives, you desired to handle 3M products exclusively with the minor exceptions of where the B. F. Goodrich line and 3M overlap. Third, on Masking Tape items you wanted the 3M line, but for the time being you also felt it necessary to retain the Industrial Tape line which you have been handling.

Christensen Deposition Exhibit 3

If your thoughs on the subject agree with ours, I'd appreciate your advising me at once so that we can go ahead with our recommendations.

Best personal regards.

Yours very truly,

(Signed) WALLY
W. H. Benson
Sales Manager
St. Paul Branch Sales

Christensen Deposition Exhibit 3

COPY

March 5, 1954

Minnesota Mining & Mfg. Co.
900 Fauquier Ave.
St. Paul 6, Minn.

Attn: Sales Dept.

Gentlemen:

Your Mr. Benson and Holden, during a visit to our office on March 3rd, advised us that because of our handling competitive products of other manufacturers, they did not believe we could give your company the proper support and that therefor, it was necessary for him to advise us that your company no longer considered us as your distributors and therefor, are unable to make any further shipments.

Mr. Benson stated that we may return our present inventory to the factory. Attached is a copy of the packing ticket covering the material which is being returned by truck, collect, today.

Christensen Deposition Exhibit 3

We did not return any of the Scotch Electrical Tape of Adhesives, as we were advised yesterday by your representative from Kansas City that any action taken by Mr. Benson and Holden concerned the industrial and abrasive division only; and that he was not aware of any reason why the adhesive division would not accept our orders.

Will you please advise us at once, if you will continue to accept orders for Electrical Tape and Adhesives.

We were looking forward to eventually enjoying a nice business on Minnesota Mining & Mfg. products; and are sorry that you found it necessary to discontinue selling us because of the competitive products which we handle. I might mention that your competitors had no objection to us handling your products when they appointed us their distributors.

Yours very truly,

AVIATION SERVICE SUPPLY COMPANY
PAUL J. CHRISTENSEN

PJC:fn

Christensen Deposition Exhibit 4

COPY

March 15, 1954

Mr. Paul J. Christensen
Aviation Service Supply Co.
Stapleton Airfield
Denver Colorado

Dear Mr. Christensen:

Your letter concerning Mr. Benson's visit has been forwarded to me to answer on behalf of the Electrical Tape Division.

Mr. Benson was acting as a representative of the St. Paul Branch Sales Dept. and was authorized to speak for "SCOTCH" Brand Electrical Tapes.

We are sorry that we cannot work closely with your organization, but circumstances are such that in the interest of good business we do not consider this advisable. Let, me, personally, extend my sincere wishes for your continued success.

Yours very truly,

J. T. DONAHUE
Sales Mgr.
Electrical Products Division

Christensen Deposition Exhibit 5

COPY

March 17, 1954

Aviation Service Supply Co.
Denver, Colorado

Subject: Returned Goods Memo #22288
Dated March 5

Gentlemen:

The subject return included two items consisting of quantities less that those established as a minimum shipping carton. The items are 39 cones Grit 50XHD Three M Ite Cloth 3-17/32" x 3" x 2" and 13 Evenrun Bands Grit 30XHD Three M Ite Cloth 2" x 2". Such items cannot be accepted for credit, and therefore are being returned to you prepaid.

The balance of your return has been accepted. An adjustment is being processed to allow you 90% credit for all the items with the exception of the #880 Fillament Tape.

Our credit memo will be forwarded in the near future.

Yours very truly,

L. R. Kastner
St. Paul Branch Sales Dept.

Christensen Deposition Exhibit 6

COPY

March 26, 1954

Minnesota Mining & Mfg. Co.
St. Paul Branch
367 Grove St.
St. Paul 1, Minn.

Attn: Sales & Accounting Dept.

Gentlemen:

Enclosed is our debit memorandum in the amount of $301.80 covering the return of the portion of your merchandise per authority of your Mr. Benson & Holden during their visit of March 3rd and confirmed in my letter of March 5th.

At the time your Mr. Benson advised us that we were being cut off as an authorized distributor of your company and that your firm would no longer sell us and that we could return any of the merchandise of your manufacturer that we had stocked, for credit, no mention was made regarding any 25% service or handling charge. Since this action was taken by you, for your convenience, we naturally assumed that full credit would be allowed.

We could have readily sold any of this filliment tape and other items which we returned for credit to customers in the Denver area at our cost or slightly above. However, since we knew it was your company policy to try to protect your distributors against price cutting we felt that the ethical procedure would be to give you the option of picking up your merchandise.

Christensen Deposition Exhibit 7

Will you please issue us your revised credit memorandum for $301.80. We wish to thank you for past favors you have rendered our company and wish to express our regrets for the circumstances which had made this necessary.

Yours very truly,

AVIATION SERVICE SUPPLY CO.
PAUL J. CHRISTENSEN

Christensen Deposition Exhibit 7

March 26, 1954

Technical Tape Corp.
611 South Flower St.
Burbank, Calif.

Attn: Milton Stohl

Gentlemen:

For your information, I am relating in this letter, the details and manner in which the Minnesota Mining & Mfg. Co. canceled our distributor agreement with them and refuses to sell our company because of our handling the products of Technical Tape Co.

For reasons which I am not aware of, the Minnesota Mining & Mfg. Co. objected to our handling your products, in particular, because we had represented the Industrial Tape Co. of New Brunswick, New Jersey many years before becoming appointed a distributor for Minnesota Min-

Christensen Deposition Exhibit 7

ing & Mfg. Co. They had no objection to our handling their products during the time we were a distributor for the Minnesota Mining & Mfg. Co.

During the months of January and February of 1954, we were experiencing difficulty in obtaining shipments on our open orders with the Minnesota Mining & Mfg. Co. and they were dilatory in replying to our correspondence and answering our telegrams. On March 23rd, Mr. Holden and Mr. Benson of the Minnesota Mining & Mfg. Co. visited my office and advised me that they had been instructed by the home office to cancel our distributor agreement because "of our activity with competing lines, they did not believe that we could give their company the proper representation and co-operation." In general conversation during this meeting, there was no question but what this action was because of our handling Technical Tape Co. products. Before advising me that our distributor agreement was canceled, considerable sales pressure and arguments were made in an effort to force us to discontinue handling Technical Tape Co. products.

I am enclosing a copy of our letter of March 5th to the Minnesota Mining & Mfg. Co., a copy of their letter of March 15th to us in reply, and a copy of their letter of March 17th concerning credit on return merchandise and a copy of my letter to them dated March 26th. You may use these letters in any way you see fit and we will be very happy to provide additional testimony or assist you in any way in your attempt to break the monopoly and sales policy of Minnesota Mining & Mfg. Co. which we feel is unethical, unfair advantage, in restrain of trade, and not the American way of doing business.

I might mention that I am certainly happy that your company is now giving the Minnesota Mining & Mfg. Co. some competition. They have been an extremely arrogant

and high handed company in their past policies. In recent discussions of the Minnesota Mining & Mfg. Co. sales policies with other jobbers in this area, I am advised that they are using the same tactics as applied to us.

Yours very truly,

AVIATION SERVICE SUPPLY COMPANY
PAUL J. CHRISTENSEN

PJC:fn

Enclosures:

1. Aviations letter of Mar. 5
2. Minn. Min. & Mfg. letter of Mar. 15
3. Minn. Min. & Mfg. letter of Mar. 17
4. Debit Memorandum

• • •

Direct Deposition Testimony of Seymour Rosenblatt, Cleveland Distributor, called by Technical

[Record pp. 2078-2093]

"Q. Will you please state your full name? A. Seymour H. Rosenblatt.

"Q. Mr. Rosenblatt, where do you reside? A. 24103 East Baintree Road, Beachwood Village 21, Ohio.

"Q. How old are you? A. Thirty-one.

"Q. And what is your business, Mr. Rosenblatt? A. Office supplies and equipment.

"Q. With what company are you connected? A. Anchor Office Supply Company.

Testimony of Seymour Rosenblatt, Cleveland Distributor

"Q. And is that located in Cleveland, Ohio? A. Yes, sir.

"Q. At 1628 St. Clair Avenue? A. Right.

"Q. And do you hold an office with that company? A. Yes.

"Q. Are you President of the company? A. I am President of the company.

"Q. How long have you been President? A. A little over four years.

"Q. When was the company organized? A. June 15, 1950.

"Q. And you have been President since then? A. Ever since; yes.

"Q. What is the business of Anchor Office Supply Company? A. Supplying office supplies and equipment to various industrial concerns in the City of Cleveland and outlying districts.

"Q. Among the items that you sell, do you sell tape? A. Yes.

"Q. Have you been selling tape ever since you started in business? A. Yes.

"Q. What type of tape do you sell? Do you sell masking tape? A. We sell sealing tape, masking tape, drafting tape, acetate fiber tape, cellophane tape, gum tape, cloth mending tape and so forth.

"Q. Whose brand of tape have you been handling since you started in business? A. Whose brand since I started in business?

"I have handled Minnesota Mining, some TEXCEL tape —I think that is a trade name—and some Tuck tape.

"Q. Have you been selling Minnesota Mining and Manufacturing Company's tapes continuously since you started in business? A. Yes, sir.

"Q. And approximately how much have you purchased from Minnesota Mining per year? A. I can't say exactly without the books. I know that today we wrote a check for around $900.

Testimony of Seymour Rosenblatt, Cleveland Distributor

"Q. Would you say that that would be a fair average? A. Approximately."

* * *

"Q. The average would be about $12,000? A. Approximately.

"Q. A year? A. Yes."

* * *

"A (Continuing) You understand that is just my memory.

"Q. What is the largest portion of it? What portion of it is masking tape and what portion is cellophane tape? A. I would say that cellophane tape is seventy-five per cent. The other twenty-five per cent is masking.

"Q. Have you also sold Tuck brand cellophane tape? A. Only upon request of a customer or upon open bid.

"Q. Did you start selling Tuck cellophane tape in 1952 or thereabouts? A. No; it was a little later than that."

* * *

"Q. Would you say it was in the Spring or Summer of 1952? A. No; I couldn't say. I would have to check the records at the office.

"Q. You gave an affidavit in the suit pending in New York. I have the original here. I borrowed it from the New York Court. I would like to show it to you and ask you if your name appears on it and you recognize your affidavit. Does this affidavit bear your name and signature? A. Yes.

"Q. And this was borrowed from the Court. A. What do you want me to say?

"Q. Tell me whether or not that bears your signature. Is that your signature? A. Yes; that is my signature."

* * *

"Q. Look at the top of page 2, if you will. Just to refresh your recollection, you stated in that affidavit that you began selling Tuck tape about the Spring or Summer of

1952? A. Yes. I might also mention that we did not buy direct from the Technical Tape Corporation in New York. We bought through the Biddle Purchasing Company.

"Q. Through whom? A. Biddle Purchasing Company.

"Q. Is that name spelled B-i-d-d-l-e? A. Yes; of New York City. 250 Chambers Street, New York, New York.

"Q. During the month of April of 1954, were you requested to submit a bid to the City of Cleveland on cellophane tape? A. I was not requested. It was on my own initiative. We heard that the City was in the market for cellophane or scotch tape. However, the City of Cleveland cannot specify any brand. It is only—how shall I say it?

"Q. Generically used? A. Yes; more or less; that is right. I guess there is a clause in there that others may be substituted.

"Q. You learned that the City of Cleveland was in the market for cellophane tape; is that right? A. That is right.

"Q. And then did you submit a bid or an offer to supply at that time? A. Yes.

"Q. Whose brand of tape did you offer in that bid? A. This particular bid, we offered Tuck tape.

"Q. And were you awarded a contract on that bid? A. We were awarded the contract.

"Q. And then you filled the order? A. Yes. But it was returned to us.

"Q. The tape was returned to you? A. That is right.

"Q. You didn't say that at the time that you gave me the affidavit? A. No. We have since picked up the tape on it. That was because the dispensers were no good, wouldn't tear off. We have papers at Tuck Tape where we returned it for full credit.

"Q. After you were awarded that contract, did a Mr. Harry Howard call on you? A. That is right; our salesman.

"Q. He is your regular salesman? A. Regular salesman.

Testimony of Seymour Rosenblatt, Cleveland Distributor

"Q. Representing whom? A. Minnesota Mining.

"Q. And he has been calling regularly on your company? A. Yes.

"Q. Did someone else accompany him on that call? A. Yes; Mr. Groth.

"Q. Mr. Harold F. Groth? A. Yes.

"Q. Were you introduced to Mr. Groth by Mr. Howard? A. I had known Harold Groth for quite some time.

"Q. It wasn't necessary to introduce Mr. Groth to you because you had known Mr. Groth? A. I had known Mr. Groth for a long time.

"Q. What is Mr. Groth's position with Minnesota Mining? A. As far as I know, he heads up their Tape Department here in Cleveland. As far as I know, he is Mr. Howard's boss or superior.

"Q. When did they call on you with respect to the time that you got the contract? A. It was approximately five or six days afterwards.

"Q. Was it in April of 1954, or thereabouts? A. Yes.

"Q. And where did they call on you? A. At my establishment.

"Q. That is at your office or place of business at 1628 St. Clair Avenue? A. That is right.

"Q. Who was present at the time that they called on you? A. Mr. Groth, Mr. Howard, myself, my partner and my usual office force.

"Q. What is your partner's name? A. My partner's name is Mr. Sumph.

"Q. Spelled how? A. S-u-m-p-h.

"Q. What is his first name? A. Paul.

"Q. At that time, was there some conversation between you, Mr. Howard and Mr. Groth relative to the fact that you supplied Tuck tape to the City of Cleveland?"

• • •

Testimony of Seymour Rosenblatt, Cleveland Distributor

"Q. Will you answer the question? A. They, Mr. Howard and Mr. Groth, came in after they found out—I mean, of course, that the City records are open because there is clean bidding down there, and at any time and any place anyone can see who bid and who received the order, and so forth. They explained to me that they understood that I supplied Tuck tape. To which I answered, 'Yes; I did.' However, I did not tell them that it had been returned. They wanted to know why I supplied Tuck tape, at which time I explained to them that previously other vendors in the Cleveland area had bid on Tuck tape. Two or three orders before that I had received the award on Minnesota Mining tape. So, to keep myself in business, since I am in business to make money, I then submitted Tuck tape because of the price differential.

"At that time, they told me very flatly that if I continued to sell Tuck tape they will be forced to take the line away from me; at which time I said, 'We will pack your product up and return it to you.'

"I said, 'No one comes in here and tells me how to run my business; what I should buy and what I shouldn't buy. As long as we pay our bills and adhere to your price schedule, which we have always done, and we have given you a fairly decent volume of business, I must protect myself, as far as making money for my business and for my company.'

"At this particular incident, if I bid on Minnesota Mining tape, I knew I wouldn't have gotten the order, and I just told them very flatly if they saw fit to discourage the sale of Tuck tape by the other dealers, I will not sell Tuck tape. I also mentioned to them that Tuck tape is not on our shelf and never has been on our shelf. It is only used for bid purposes.

"Q. At that time, did Mr. Howard state to you, 'If you continue to sell Tuck brand tape, we will have to quit doing business with you and we will cut you off completely as we did a big jobber in Pittsburgh'? A. Yes, sir.

Testimony of Seymour Rosenblatt, Cleveland Distributor

"Q. And did Mr. Groth approve that statement? A. That is right. He agreed with it.

"Q. Do you recall whether or not while they were there and in their presence you telephoned the Department of Justice? A. I surely did.

"Q. And what did you tell the Department of Justice? A. Exactly what I just stated to you. I told them the whole story and that I didn't think they should tell me what merchandise I can or can't sell, as long as it isn't a franchise type of supply. After all, we have given them good coverage and have been a very loyal account of theirs. I saw no reason for a few awards that slip by they should blow their top.

"Q. After you finished talking to the Department of Justice, did you tell Messrs. Howard and Groth that you would quit selling Tuck brand tape? A. No.

"Q. You did not? A. I told them that when occasions arise where my competitors, who are also Minnesota Mining dealers, bid Tuck tape and where the customer suggests that we furnish them Tuck tape I will continue to service them with Tuck tape. However, as far as we are concerned, Minnesota Mining tape is better, better advertised, a better product and easier to sell. So, we are not going to quit our efforts to merchandise it and keep several lines of tape on the shelf because we have too many other items to contend with.

"Q. Since then, have you continued to buy both lines? A. No; I have continued to buy only one. We have bought only one or two purchases of Tuck tape, one of which was for one of the county agencies and I believe that one went into one of the city agencies. It was strictly a sealed bid proposition where price would get the order. We do that in county and city bidding.

"Q. I show you a document which I will ask the Notary to mark 'Rosenblatt Exhibit 1.' I will ask you to identify

it, if you can. I will ask tha it be marked before I show it to you. Then I will let Mr. Hofeldt see it.

"(Marked 'Rosenblatt Exhibit 1.')"

Now that, your Honor, is the Department of Justice letter that is attached to the affidavit of Mr. Rosenblatt, which is now part of Exhibit 44, and that reads this way. It is on the Department of Justice, Antitrust Division letterhead, United States Court House, Foley Square, New York 7, N. Y.

"In reply refer to JBLeddy: CLM60-30-15"

It is addressed to the Anchor Office Supply Company, 1628 St. Clair Avenue, Cleveland, Ohio, and is dated April 7, 1954, attention of Mr. Seymour H. Rosenblatt.

"Gentlemen:

"In connection with an investigation by this Department of the alleged violations of the Federal Antitrust Laws, it is requested that you make available for examination by the bearer, an agent of the Federal Bureau of Investigation, such of your files as he may request.

"Your cooperation in this investigation will be very much appreciated.

"Sincerely yours,

"Stanley N. Barnes, Assistant Attorney General, by Richard O'Donnell, Chief of New York Office."

Now to continue with the reading of the deposition:

"Q. Will you tell us what that is? A. This was brought to us by an examiner of the Department of Justice, Antitrust Division.

Cross-Examination of C. C. Smith, Minnesota's Cellophane Tape Manager

"Q. Did you receive that in reply to the complaint you related a moment ago? A. Yes.

* * *

[Record p. 2093]

"Q. What was your reason for not wanting to testify in this case? A. I do not want to get involved in these cases; I certainly don't want to be put in the middle; I certainly don't want to lose the Minnesota Mining line or any line that I am handling. We are engaged in the sale of merchandise and—

"Q. After you gave an affidavit in this case, did anybody representing Minnesota Mining & Manufacturing Company talk to you about this case? A. No. As a matter of fact, we have gotten top service.

"Q. Have they treated you much better since then? A. Yes; I have no kicks against Minnesota Mining & Manufacturing as far as service and so forth goes.

* * *

Cross-Examination of C. C. Smith, Minnesota's Cellophane Tape Manager

[Record pp. 3937-8]

Q. Now, what did you understand I meant by substituting or palming off? A. I understood that to mean that upon the order of a customer for Scotch Brand Cellophane Tape the order was not filled as specified.

Q. Without the knowledge of the customer, is that what you mean? A. With or without.

Q. So 3M's complaint is that they don't want a competitor to push—rather they don't want the distributor to push a competitor's tape ahead of 3M tape? A. Not at the expense of 3M tape, no.

Q. Not even if the customer says "It is all right. I will take it"? A. I did not say that, Mr. Morris.

Cross-Examination of C. C. Smith, Minnesota's Cellophane Tape Manager

Q. I am asking you that. A. I said that when a distributor on an order for Scotch Brand Tape goes to the customer and says, "I can give you Scotch Brand if you want it, but I will give you a tape which is just as good and at a cheaper price," I consider that unfair, and I would certainly not cooperate very long with that type of distributor.

Q. And you would cut him off? A. I think I would, yes.

* * *

[Record pp. 3927-29]

Q. Well, all right. You have talked about, let us say, that some of the dealers or distributors substituted tape made by some other company? A. Some other manufacturer, yes.

Q. When the customer called for Scotch tape? A. That's right.

Q. Did the customer in those instances call for Scotch tape or Scotch Brand Tape? A. I wouldn't be sure of that.

Q. Now you don't know, either, whether those substitutions, as you call them, were with the consent of the customer, do you? A. No, sir.

Q. You remember also that in connection with this Anchor Office Supply Company—well, let us go back for a moment on that same company. There drop shipments were made, the ones you knew about, the ones that were discussed, were made to a lunchroom or a candy store or something nearby, weren't they? A. I don't recall that.

Q. You don't know that? A. No.

Q. How did you know that they were cheating? Where did you get that information from? A. It was reported to me by our Cleveland sales manager.

Q. And he simply reported that there were drop shipments which were not legitimate drop shipments? A. That's correct.

Q. He didn't tell you where they were made? A. I didn't bother to ask; I didn't think it was necessary.

Q. He didn't tell you where they were made? A. No, sir.

* * *

Direct Testimony of C. L. Arnold, a Pawtucket Jobber, called by Technical

[Record pp. 2813-14]

The Witness: Well, in both ways. I mean we act as salesman for ourselves, but we are also selling the product for the people who are going to use it, but the policy of tape has always been, as long as I ever sold it, anyway, that large users of tape were given preference. In other words, they would drop ship the tape to the customer at no additional cost to the jobber. In other words, you weren't billed for any freight or anything; plus the fact that in some cases there was a larger discount given to the jobber if the tape was drop shipped to the customer, one reason for that being that somewhere along the line if I ordered a large quantity of tape I could get a larger discount on it, to their insurance, which you probably can't blame them for, so that if they drop-shipped these larger quantities of tape directly to the customer, and then they give you a bigger discount, that you wouldn't try and finagle around to get the larger discount and then ship it to the customer yourself, although they may think you weren't going to ship it to the customer but try to pick up the extra discount which they allowed on drop shipments. That was the main purpose for it. And as far as—

* * *

Direct Testimony of Richard Drew, the Alleged Inventor of Drew II, called by Technical as Hostile Witness

[Record pp. 1976-7]

Q. Now, Mr. Drew, in your work that you did on pressure-sensitive adhesive prior to the filing of the application for the patent in suit, you were concerned with what was essentially a rubber-resin adhesive, weren't you? A. Rubber-resin pressure-sensitive adhesive, yes, sir.

Q. That is, you were concerned with making adhesives from rubber as one ingredient and resin as another ingredient? A. Yes.

Q. And that was all that you were concerned with; that is, as far as the base and the tack-producing elements are concerned, you were concerned only with the use of rubber and the use of resin? A. That is all I had to work with. That is all I knew anything about.

Q. That is all you knew anything about? A. Yes.

Q. You were not thinking about using a synthetic resin or synthetic resins without any rubber? A. No, sir.

Q. Or any rubber without any resin? A. Not to my knowledge, no, sir.

* * *

Cross-Examination of Tierney, Minnesota's Vice-President and Expert Witness

[Record p. 503]

* * *

Q. What I want to know is whether where Drew says "which are either non-fibrous or are coated with non-fibrous films," such as varnish, lacquers and so forth, I want to know whether a piece of thin, normal thin tissue paper, which has its surfaces completely coated with varnish, for instance, or a lacquer, comes within the purview of that latter part of that sentence where he is referring to the non-fibrous films. A. Again I repeat, I don't know for sure what the exact thing it was he had in mind at that particular section. But if such a tissue paper were coated in the manner you describe, in such a way as to leave a non-fibrous film coating over the tissue paper on both sides, then such a product would certainly fall within and satisfy the terminology of this particular section of the patent.

* * *

[Record pp. 507, 508]

Q. Now I have to go back to that same expression you have been talking about because we got off that.

I asked you about tissue paper which was coated with varnish, and we disposed of that.

Now would glassine paper, both surfaces of which are completely, absolutely covered with varnish or lacquer, come within this expression that we have been talking about, which is "or are coated with non-fibrous films such as varnish"? A. Yes, it might.

Q. Well, in your opinion, as one having experience in this art, does it or doesn't it? A. Yes.

Cross-Examination of Minnesota's Witness, Edward C. Lake, a duPont Salesman

[Record pp. 984-985]

* * *

Q. I hand you Plaintiff's Exhibit 100 for identification and ask you if you can identify that as a photostat of a du Pont price list on cellophane, dated December 16, 1935. A. I think that is correct.

Q. And I call your attention, sir, to the chart on the righthand side of the first page. Now that shows you, Mr. Lake, does it not, a steady and almost precipitous decline in the price of cellophane made by du Pont, both normal or plain cellophane and moisture-proof cellophane, from the time of their introduction until 1935? A. It is supposed to.

Q. And the chart shows a steady decline, does it not, in the price of cellophane? A. I think that is right.

Q. Almost a straight downward line, is it not? A. It is not a straight line.

Q. Mighty close to it. A. Apparently close to it. I could draw a straighter one.

* * *

Direct Examination of Ralph C. Schilly, a duPont Chemist, called by Technical

[Record p. 2291]

Q. Approximately what was the differential between cellophane and paper at this 1928 period? A. In 1928 I think it was around maybe a little less than, probably less, $2 a pound by 1928; I may be wrong.

Q. What was paper selling at? A. Whereas paper may have been in the neighborhood of 12 to 14 cents, something in that range.

* * *

Colloquy of Counsel for Technical and Minnesota

[Record pp. 2456-58]

• • •

Mr. Spille: "* * * I take it, Mr. Haight, that you are not telling the Court now that we should leave out Examples A and B from this patent.

Mr. Haight: Well, just a minute, Mr. Spille. You can't leave them out because they are specifically there, but I certainly will advise this Court that Examples A and B are not covered by any of the claims.

• • •

Mr. Spille: I am going to be very clear about this, or I want to be very clear on it. Does this mean, Mr. Haight, that Examples A and B which are supposedly pressure-sensitive adhesives of rubber and resin, when applied to cellophane, or any other non-fibrous film backings, whatever their inherent characteristics may be, are not part of Drew's alleged invention?

• • •

Mr. Haight: All right. Certainly that is part of his invention, if you are going to use invention in the broad sense, yes" (Record pp. 2456-58).

Technical's Exhibit 18

Drew U. S. Patent 1,760,820.

(See opposite ☛)

Technical's Exhibit 18

May 27, 1930. R. G. DREW 1,760,820

ADHESIVE TAPE

Filed May 28, 1928

Fig. 1

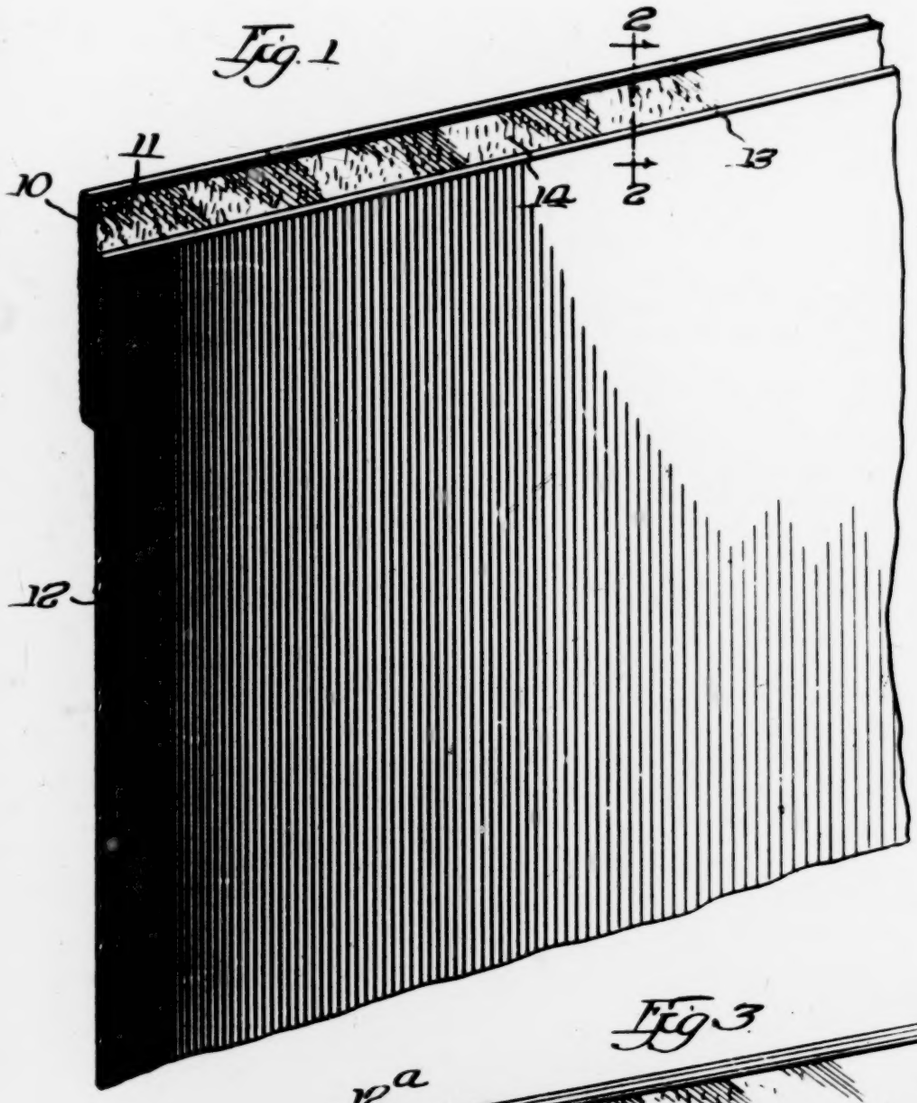
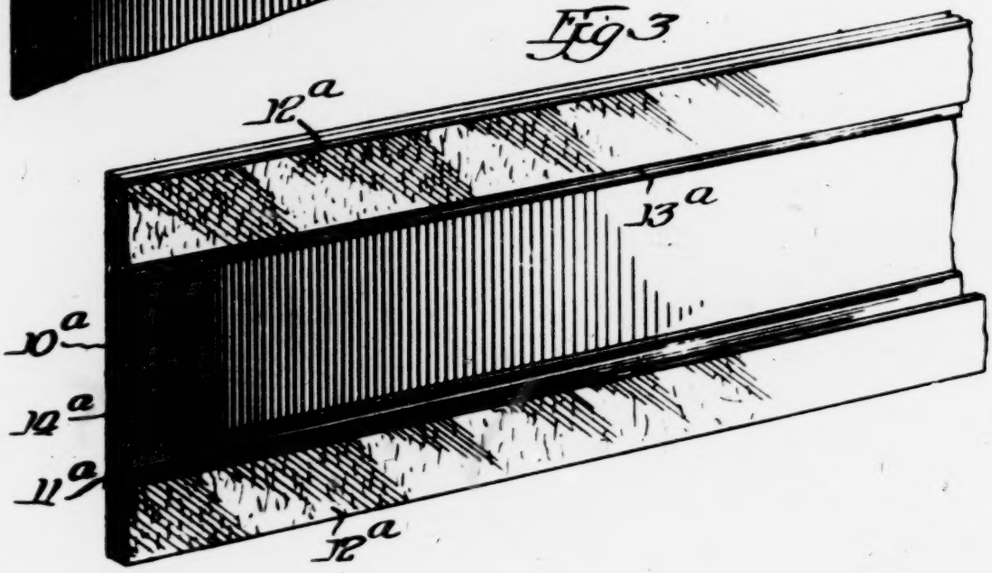




Fig. 2

Fig 3



Witness:

Inventor

Richard Gurley Drew

by attorney

Paul Carpenter

Patented May 27, 1930 1,760,820

UNITED STATES PATENT OFFICE

RICHARD GURLEY DREW, OF ST. PAUL, MINNESOTA, ASSIGNOR TO MINNESOTA MINING & MANUFACTURING COMPANY, OF ST. PAUL, MINNESOTA, A CORPORATION OF MINNESOTA

ADHESIVE TAPE

REISSUED APR 3 1934

Application filed May 28, 1928. Serial No. 281,104.

My invention relates in general to adhesives, adhesive compositions or adhesive sheets or coatings; more particularly to pressure energizable adhesives, adhesive sheets or coatings, preferably water insoluble and normally non-drying.

My invention is a continuation in part of my prior application, S. N. 182,893, filed April 11, 1927 for Adhesives in the form of sheets or the like and method of making the same.

While my invention has a broad field of usefulness, I have found it of peculiar utility for producing an adhesive coating for limiting the application of the spray of liquid finishing material, such as, for example, lacquers or painting materials used in operations in automobile body paint shops and therefore find it convenient to describe the invention in connection with such practice and product, it being understood, however, that such fields of specific description are employed purely for purposes of illustration of an example of the utility of this invention in its several phases, besides other novel phases as may appear or be hereinafter pointed out.

In the work referred to specifically above, my improved material may be used directly as a coating or as an adhesive material for holding protective paper aprons or masks against surfaces on which it is not desired to apply a lacquer, paint, paint spray or lacquer spray, such as, for example, glass windows, upholstery, rubber mats, running boards, bright metal parts and wrapping material in general, and the like.

My product may also be applied to a surface which, in a subsequent step, is to be finished by an application of a lacquer spray or painting or to a surface which has been finished in order to prevent mingling of the colors, as for example, in two color work. My improved material may be applied to paper or similar fabric material in sheeted form and is capable of being stored in piled sheets or in laminations, as formed by rolling layers of material, such as tape, or such other form as may be proper for the purpose contemplated.

For certain preferred work, for advantages hereinafter pointed out, my improved material may be applied to paper to impart minimum point contact and inherent elasticity by applying the same to paper which is toweled or crimped or otherwise shaped to present a surface other than flat and which has an extensibility beyond that of the flat paper web. Further, my improved material may be applied to completely or partially cover a backing material such as paper to present a surface which has minimum adhering surface, yet satisfies the requirements of a completely coated backing material.

It is to be observed that in finishing automobile bodies with lacquers, paints or the like of a plurality of colors, difficulty is found in limiting the application owing to the diffusion of the spray, where such is used, or requiring skillful application of the paint brush, when the latter is used. In order to obtain a clear and cleancut line of demarcation between several colors or within limited areas or applying a coating material within limited areas, masks or aprons in the form of adhesive tape have been used. These are of the general types comprising an insoluble zinc oxide adhesive coating and the rubber base adhesive coating as one group, both of which use a cloth backing, and the ordinary gummed paper tape, which forms an example of the other type. Both types of tape referred to present certain marked objections. As to the latter type, ordinary gum base tape is energized by wetting, objectionable in that it requires this wetting operation before application and still more objectionable in that it adheres so tenaciously that to remove the same requires softening of the adhesive material with large quantities of water for a long time and where this practice is resorted to the paper material becomes so weak as to laminate and tear and, to effect removal, sometimes necessitating scraping, tending to mar the underlying surface.

In the case of cloth backing, adhesive coated material, a rather expensive item is involved in the use of the cloth backing but this material is still further objectionable for use for the purpose contemplated in that the woven fabric is distensible to an extent which will make its edges irregular and unsuitable

for stripping. Furthermore, the cloth is permeable to the solvents normally used in connection with lacquer whereby the adhesive coating will be disengaged and be left as a residue upon the body of the material.

Still further, a woven fabric, such as cloth, tends to unravel or leave a feathered edge and is, furthermore, of such thickness as to present a blurred effect at marginal edges of the paint or lacquer coating.

Still further, adhesive coatings, such as cloth back zinc oxide or rubber base type tapes are not only permeable to the solvents used in lacquering or painting operations tending to disengage the adhesive and leave the same upon the work but when stacked in rolls or sheets, they are more permeable to atmospheric oxidation, tending to cause an unduly rapid deterioration of the adhesive material with a consequent loss of their power of adhering to the object to which they are intended to be combined.

While for simplicity in describing the invention and as an example for making the same, I have referred to a rubber base adhesive, it is understood that it is contemplated to employ a non-drying, pressure aggressive adhesive material and that this expression is used in the specification and claims in its broadest sense.

Among the objects of my invention are the provision of an adhesive or coating material which is non-drying or becomes aggressive by the application of pressure; the provision of an adhesive coating or coating material which becomes energizable by the application of pressure and without modification of the same by solvents or heat; the provision of an adhesive or coating material upon an inexpensive base, such as sheeted material of paper, the same being non-drying and energizable by the application of pressure without the use of solvents or heat; the provision of an adhesive upon a base of relatively non-distensible material such as paper, which may be applied to a lacquered, painted or varnished surface merely by the application of pressure of this member thereto and will present a straight edge; furthermore, the provision of an adhesive upon a base or backing, the backing serving as an impermeable member to the solvents of such materials as paints or varnishes whereby an adhesive material applied to such work as the body of an automobile will not have the adhesive coating thereof disengaged by the solvents of the lacquer, paint or varnish applied thereover; the provision of an adhesive coating material upon a base or backing, such as paper, which may be applied merely by the application of pressure and which may be retained in superimposed layers thereof, such as stacks or piles or rolls without the use of slip sheeting whereby the back of the sheeting may be removed from the adherent coat of an adjacent layer; the provision of a sheeted material having an adhesive coating, which is normally non-drying and pressure aggressive but which is so formed as to contact with work upon which it is applied to have sufficient adhesiveness for its intended function of holding a sheeted material in position but without marring the work to which it is applied, characterized by coating a base or backing of paper which is creped, toweled or otherwise formed to lessen contact over its entire area; the provision of a sheeted material having an adhesive coating thereon to limit the contact of the adhesive coating as by forming the paper by creping or toweling or localized application of the adhesive coating to the surface of the sheeted material; the provision of a sheeted material having a pressure aggressive adhesive material which may be adhesively applied to a surface and separated therefrom without splitting of the paper or marring of the body to which it is applied or leaving a residuum of the adhesive particularly after use in a painting operation by application of solvents for the paint to the back side of the same.

A still further object of my invention resides in the provision of a sheeted material having a pressure aggressive coating thereon, the whole of which is relatively somewhat stretchable and somewhat resilient, characterized by forming the backing from creped or toweled paper; the provision of a sheeted material having a paper or like base treated to render the same impermeable to coating materials, such as lacquers, paints, varnishes or the like whereby solvents used in lacquers, paints, varnishes or the like will not disengage the adhesive material which may be mounted thereon; the provision of a sheeted adhesive material having a paper base treated whereby a pressure aggressive adhesive may be applied thereto without permeating to the other side thereof; the provision of a sheeted adhesive material having a calendered, or bibulous uncalendered paper base saturated with an adhesive material whereby an adhesive coating may be applied to the same for adhesively attaching the same to a surface by the application of pressure and capable of being separated from such surface without tearing or splitting of the paper or leaving a residuum of the adhesive material upon the surface to which it is applied.

My invention still further has for an object thereof the provision of a sheeted material having a base such as paper, including on one surface thereof a non-drying adhesive coating comprising rubber and a resinous material, the adhesive being energizable by the application of pressure and which is capable of retaining the adhesive character under the most adverse atmospheric conditions, the sheet being characterized by freedom

from loss of adhesiveness and material change of the rubber and which may be further stacked or piled without the use of slip sheeting characterized by the absence of permeation of the adhesive coating to the back surface of the sheet.

The invention still further has for an object thereof the provision of an adhesive tape material having a paper base in which the filamentary material of the paper is locked and is resistant to tearing and splitting when in contact with an adhesive surface; the provision of adhesive tape material having a paper base in which the filamentary material of the paper is locked and is resistant to tearing and splitting when in contact with an adhesive surface characterized by surface treating and saturating the paper with a glue or gelatin base material; the provision of a sheeted adhesive material having a paper base which is resistant to tearing and shock by forming the same from creped or toweled paper and surface treating or saturating the same with a glue or gelatin base material whereby a pressure aggressive water insoluble adhesive coating may be applied thereto; the provision of a sheeted material having a paper base, treated or saturated with a glue or gelatin base material and further surface treated with a separator material for an insoluble pressure aggressive coating whereby sheets may be rolled or stacked without the use of intermediate slip sheeting; the provision of a sheeted material having a paper base, surface treated or saturated with a glue or gelatin base composition and a flexibility augmenting agent including glycerine whereby the surface thereof may be substantially non-adherent to a non-drying, pressure aggressive adhesive material, such as zinc oxide or rubber base adhesives, to provide a material capable of being stacked, piled or rolled without the use of intermediate slip sheeting; the provision of a sheeted material having a paper base, having an adhesive applied to limited portions thereof, such as predetermined edges of one surface whereby limited adhesiveness may be had with covering capacity of the entire sheet.

To attain these objects and such further objects as may appear herein or be hereinafter pointed out, I make reference to the accompanying drawing forming a part hereof, in which—

Figure 1 is a perspective view illustrating my invention as applied for use in connection with a painter's mask;

Figure 2 is a section taken on the line 2—2 of Figure 1;

Figure 3 is a perspective view of another embodiment of my invention.

One embodiment of my invention is in the form of a sheeted material in the nature of a tape 10 of a paper base of the character hereinafter referred to and described and treated in accordance with an invention disclosed in my application S. N. 182,893, filed April 11, 1927, and is preferably a paper saturated with a glue or gelatin base and is coated on one face with a non-drying, pressure aggressive adhesive 11. In this form, to apply a mask or apron 12 for painting or lacquering operations, a sheeted material which may be paper or the like has attached thereto adjacent the edges 13 a strip of tape 10 and it is positioned so that a portion 14 projects beyond the edges 13. The projecting portion 14 may thereafter be applied to fasten the mask or apron wherever desired, duplicating the affixation of the attaching strip at opposite edges of this mask, it being understood, however, that the strip itself may be used to cover surfaces of its own width.

In Figure 3 I have illustrated another embodiment of my invention comprising an adhesive sheeted material in the nature of the tape 10^a of a paper base of the character hereinafter described or treated in accordance with the process outlined in my application aforementioned. One face 11^a has thereon edge strips of adhesive material 12^a, preferably mounted upon an interposed priming coat layer 13^a, thus forming spaced adhesive portions and intermediate, non-adhesive portion 14^a, thereby providing a tape or sheet of limited adhesive contacting surface, though of covering capacity equivalent to the full width of the tape or sheet.

The paper base 10 may be any of the following, which I cite by way of example:

(*a*) Craft paper, regular sulfate paper, straight 100% wood pulp;

(*b*) Sulfite paper containing a goodly portion of cotton stock, suitably sized and maintained soft by additions of small quantities of glycerine;

(*c*) A parchmentized paper;

(*d*) A paper base which is preferably absorbent, approaching blotting paper, calendered or uncalendered; preferably, however, this paper base is of the unsized, uncalendered variety and is pressed, molded or otherwise formed with rugosities or corrugations to have the appearance of toweled fabric, such as by crimping or creping the same.

Paper of the character above described may have directly applied to one surface thereof a water insoluble, non-drying adhesive, preferably energizable or active merely by the application of pressure, so-called a zinc oxide or rubber base adhesive for surgeon's or industrial tape. This adhesive material may be given as follows:

Example A

A rubber compound and tackiness augmenting agent in the form of a synthetic resin. Proportions suitable for ordinary temperate climates may comprise:—

10 lbs. of plasticized, first quality planta-

tion rubber, such as clear crepe or smoked sheets.

2 lbs. of cumaron gum or resin.

½ lb. of zinc oxide pigment.

The cumaron gum or resin is preferably an artificial resinous material coming under the group name of cumaron and indene resins, which is the polymerization product of coal tar derivatives. The above ingredients are compounded on a rubber rolling mill to a plastic condition and then cut to desired body or consistency, using a rubber solvent such as benzol or a petroleum solvent, such as high test gasoline.

In lieu of a synthetic resin I may employ a low boiling point natural resin, e. g., Burgundy pitch or pine oil foots. Burgundy pitch is soluble in both alcohol and benzol.

Example B

2 lbs. of plantation rubber.

5 lbs. of Mexican or wild rubber, high in natural resin content.

1 lb. of zinc oxide pigment.

The ingredients above enumerated are compounded on a rubber mixing roll and then cut to the desired consistency in a rubber solvent, based upon the necessity viscosity for spreading this material. Ordinarily, in both Examples A and B, the solvent is calculated by the number of pounds of solid compound in one gallon of solvent such as, for instance, 8 lbs. of solid or compounded material and 1 gallon of benzol, which is commonly referred to as an 8 pound cut. The variations in proportions of solvent added will depend upon the desired thickness of adhesive coating required in the residuum.

It will be understood that the examples above given are for purposes of getting the requisite adhesiveness in temperate climates. An increase in resinous material or wild rubber may be made for material to be used in colder climates and in warmer climates the resin component may be reduced.

The resinous component may also be varied in its characteristics in its reactions to solvents by choice of the resinous material. Thus, for purposes of removal of the adhesive from some body to which it may be applied, it may be made soluble to various organic solvents, either benzol, gasoline, acetone or alcohol. Thus, where it is desirable to make a surgeon's tape, which is soluble in alcohol, an alcohol soluble resin is added in the examples above cited. Such resin may be Burgundy pitch. This will permit alcohol to be used in removing a piece of adhesive tape from any surface, such as from the skin of a patient, by merely soaking the backing of the tape in alcohol. The rubber, in any event, merely acts as a vehicle for the resin and the character of the adhesive in its reaction to solvents will be dependent upon the character of the resin incorporated with the rubber.

The rubber resin compounds in their solvents may be spread upon the paper backing directly, utilizing a knife spreader to uniformly and equally distribute this material upon the base or backing. The solvent may thereafter be removed by evaporation, preferably without recovering the solvent and leaving the rubber mixture upon the paper backing.

Though I may directly apply the rubber in its solvent upon a paper backing, particularly of the character above indicated as craft or white paper, it is preferred to preliminarily treat the paper with sizing coats, priming coats or separator coats.

Though, as above described, I may use the craft paper, white paper or parchmentized paper directly for a base or backing for the rubber adhesive, it is preferred to treat one side of the paper with a rubber primer and the opposite side of the paper with a rubber finisher and then applying the rubber adhesive to the side of the paper first treated with the rubber primer after first preferably treating the paper, especially where that hereinabove exemplified as A, B or D is used, with a glue-glycerine solution insolublized and preferably flexiblized by the process herein described and more particularly referred to in my application, S. N. 182,893.

The rubber primer is preferably a very light solution of rubber, which will leave a very thin residue of rubber, preferably tacky and to render the adhesive coating more amenable to adhesion therewith. The rubber finisher is preferably a solution of rubber which will leave a modified rubber deposit, such as chlorinated rubber or vulcanized rubber, thus leaving a residuum of rubber which is non-tacky and non-adherent to the touch of the hand or when stacked or rolled, will be capable of ready separation from the adhesive face. Tape so made can be wound up in rolls without slip sheeting and unwound successfully.

An example of a rubber primer as above used is as follows:

100 parts by weight of milled plantation rubber.

7½ parts by weight of phenolsulphonic acid.

This combination is formed in sheets and subjected to an oven temperature of 135 to 140 degrees centigrade for approximately six hours. The resulting product is flexible, and when dissolved in benzol forms an extremely liquid solution.

Untreated, smoked sheets, when cut in benzol, will form a very heavy, viscous and gelatinous solution.

Conversion of rubber into thermoplastic products, can also be accomplished by using

other reagents, such as toluenesulphonyl chloride and toluenesulphonic acid.

An example of a rubber finisher as above referred to may be made as follows:

Plantation rubber dissolved in a suitable solvent, such as benzol is placed in an agitator into which a small stream of chlorine gas is allowed to flow. The temperature is checked by artificial refrigeration, and the chlorine treatment continued until the rubber solution has become about 55% chlorine saturated. Beyond this point free chlorine escapes, which is not desirable.

It will be understood that I may, for certain purposes, substitute for the rubber finisher coat a treatment such as outlined in my application S. N. 182,893 and the means therein described for assuring separation between the back of one sheet and the adhesive surface on the opposite side of an adjacent layer.

In the practice of my invention utilizing parchmentized paper, the adhesive base may be applied directly thereto. It is preferred to treat the back with glycerine or a glue-glycerine mixture and the opposite side, before applying the rubber adhesive, with a rubber priming coat—still further, by substituting for the glue-glycerine back size a rubber finisher coat as in the example above described. The back of the parchmentized paper, whether including a back size or rubber finisher coat, or not, may be improved during its manufacture or subsequently by the addition thereto of a thin coating of glycerine.

Unsized craft paper or the creped, toweled paper above referred to may be used directly for applying thereto to rubber adhesive, preferably first interposing the finishing coat on the back and the priming coat on the front before applying this adhesive coating. Preferably, where the paper is of the unsized, uncalendered variety, the fibres thereof may be strengthened by treatment with a glue-glycerine solution to completely bond the fibres and may be insolubilized or tanned and have the flexibility thereof augmented by the process described in my application S. N. 182,893. Paper so treated, particularly as a result of first saturating with glue-glycerine and treatment with formaldehyde, forms a splendid base for the rubber primer, it being understood that I may treat the paper with glycerine or glue-glycerine after first applying a rubber priming coat, in which case it forms a layer to seal the surface of the paper, preventing the glycerine or glue-glycerine from penetrating into the rubber primer, and thus weakening the adhesiveness of the rubber. The fibrous material of the paper is bonded against lamination and is highly flexible. Economy is also effected in the amount of glue and glycerine necessary for saturating the paper base. I find that where the back of the paper is so treated, the primer adheres more firmly thereto.

A paper base of the character above described may be treated with a glue base saturating solution or an insoluble solution. For this purpose, the paper base is first sized with a solution of polyhydric resin, a synthetic resinous material resulting from the reaction, condensation or polymerization of polyhydric alcohols or their anhydrides or similar compounds or polyhydric acids or their anhydrides. This center sizing material for the paper base may have its flexibility suitably augmented and upon evaporation of the vehicle there may be applied the rubber adhesive layer, preferably by first treating one side with a rubber primer and back sized with a rubber finisher of the character hereinabove referred to.

For making a paper base or backing, the paper is first submitted to a preliminary treatment by a saturating solution involving a glue base. The saturating solution of the following materials in proportions represent my preferred practice:—

36 pounds of dry glue
72 pounds of water

108 pounds (approx. 16° Twaddell) glue solution.

Complete swelling is permitted, assisted by warming.

To this is then added 108 pounds of yellow glycerine.

108 pounds (approx. 16° Twaddell) glue solution
108 pounds pale yellow glycerine

216 pounds glue-glycerine water solution.

To this is added 216 pounds of water.

216 pounds glue-glycerine water solution
216 pounds water

432 pounds.

The paper above described is preferably continuously submerged and passed through a bath of the saturating solution as above prepared and then passed through pressure rolls to squeeze off the excess and then dried by heating. It will be observed that just complete saturation is preferred as this step is closely related to the success or failure of the treatment. An insufficient saturation will be characterized by failure to completely bond the fibres of the unsized paper nor will the saturating solution be present on the back side. An over-sufficient saturation of the paper will render the surface unfit for subsequent coating, which will be observed as this description proceeds.

A paper so treated will be found to have the fibres thereof locked to materially strengthen the paper web and provide a

highly flexible sheet. Where I use the toweled or creped variety of paper, this sheet will be found to be substantially elastic and resistant to tearing by shock as where using the same for wrapping purposes.

Prior to the drying step above mentioned, in one form of the practice of my invention, after the paper has been saturated and passed through the pressure rolls, the web of material is subjected to a treatment tending to insolubilize or tan the glue. The insolubilizing or tanning agents may be formaldehyde in solution or as a vapor, sodium carbonate solution of gallic and tannic acids, chromium trioxide and chrome alum or other chrome and aluminum salts.

My preferred practice is to submerge the paper in a bath consisting of one part commercial formaldehyde and nine parts water by volume. The lapse of time between saturating with glue-glycerine water solution and formaldehyde does not seem to materially affect the quality of the paper. Formaldehyding on one side only, that is, the application of formaldehyde to one face of the previously treated paper, is preferred for purposes which will hereinafter appear where it is desired to further coat the untreated surface and leave the opposite surface substantially inactive.

The formaldehyding on one face only has the advantage that immediate insolubilizing or tanning may be practiced and further, treating one side only is less strain on a paper than complete submersion, particularly where the formaldehyde is in the form of a solution and the saturated paper before the excess water is evaporated is of low tensile strength and therefore less subject to tear or break. The treated surface is then submitted to a neutralizing action and where formaldehyde is used for the insolubilizing or tanning action, I may accomplish neutralization by subjecting the paper to a lime water treatment. It is preferred, however, to submit the formaldehyded web to a heat treatment. A temperature of 140 to 160° F. is used to thoroughly dry and volatilize all surplus formaldehyde.

It will be observed that I have described the saturation and the insolubilizing or tanning of the glue base as separate steps. However, the tanning or insolubilizing agent may be incorporated in the saturating solution above described, the tanning action or insolubilizing action of the glue being accomplished simultaneously with the drying of the saturating solution. For this purpose there is added to the saturating solution the tanning or insolubilizing agent. Where I use formaldehyde, I put an aldehyde compound into the glue solution prior to the saturation step. It is preferred to retard the action of the aldehyde so that the insolubilizing or tanning of the glue is accomplished in the drying step. This retarding activity is accomplished by taking any aldehyde compound, such as formaldehyde, and adding ammonia thereto. In practice, equal molecular percentages of formaldehyde and ammonia are used in amounts equivalent to 5% of the aldehyde to the dry weight of the glue.

The saturating solution thus modified is used in the manner previously described. In the drying of the paper, the aldehyde-ammonia compound breaks down to liberate formaldehyde, setting up, insolubilizing or tanning the glue.

Though mere exposure by air drying of the saturated paper will sufficiently insolubilize the glue, due to the decomposition of the ammonia-formaldehyde compound, to liberate formaldehyde, however, it is preferred to hasten this decomposition by heating the saturated web. Ordinarily a temperature of approximately 80° C. will be sufficiently rapid. However, it is preferred to use a temperature between 100 to 120° C., which has been found to sufficiently set the glue with a speed of operation conducive to best practice.

The sheet so saturated and heat treated will have the glue or gelatine base substantially insoluble and, in a sense, waterproof. The paper base will be particularly strengthened and be resistant to sudden shock or stress, making it admirably suited for wrapping purposes. Particularly desirable elastic properties will be obtained where the paper base is of the toweled or creped variety wherein actual elasticity is imparted to the paper in that it retains the crimping or creping originally formed or molded in the paper and the tensile strength is materially increased and is tougher in a wet state when carrying its minimum amount of water content, apparently due to a vulcanizing or glueing together of the fibres of the paper into a solid mass. The flexibility augmenting agent further provides a sheeted material resistant to bearing when sharply folding the same.

Where I have described the use of dry glue with pale yellow glycerine, it will be observed that good results have been obtained with cheaper material such as low grade glue and using the crude rather than the pale yellow glycerine. Other flexibility augmenting agents as a modifier for the glue in place of the glycerine may be used. For certain purposes, particularly as will hereinafter be described, sulphonated oils such as Turkey red oil, sulphonated castor oil, may be used. These materials are not hygroscopic and tend to check, to a certain extent, the tendency to absorb and carry too much water. While I may use hygroscopic agents in general, for modifying the glue to retain a certain amount of water content inducing flexibility, it is preferred to use organic modifiers and for this purpose a sugar content fused in the glycerine of the saturating liquid has been found to be

particularly desirable. A paper web saturated with glue, formaldehyded or tanned as above described, has been found to be waterproof and particularly suitable as a base for forming the adhesive tape previously described when there is coated thereover the pressure aggressive, non-drying rubber base adhesive previously described.

By a "unified cellulosic backing" I mean to include a web of fabric comprising paper chosen from the materials herein described including gelatinized cellulosic sheets, such as parchmentized paper, preferably treated with glycerine; paper treated with a composition consisting of glue, preferably modified by a softening agent, such as glycerine; paper surfaced with an insoluble rubber, such as chlorinated rubber; paper surfaced with an insoluble varnish compound, such as an insoluble resinous condensation product, the products whereof have the materials of the sheet in a condition so that when coated with a normally pressure sensitive adhesive, the elements of the sheet will be protected and held together against separation and with greater adhesion inter se than the adhesive coating has for the material to which the adhesive coating is affixed, to permit removal of the sheet from work to which it is applied or from rolls or stacks of such sheets, without substantial splitting or lamination of the sheet.

By a "unified pressure sensitive adhesive" I mean to include a coating which is normally adhesive by pressure as in applying a tape to a body material in which adhesion is effected without the necessity of energizing the adhesive by a moistening agent, and which has greater adhesion to the backing to which it is applied and cohesion inter se than adhesion to the surface to which it is temporarily applied, to permit its use for the purposes herein outlined, without substantial breaking, separation or lamination.

By "normally pressure sensitive adhesive" I mean to include a coating which normally is adhesive by pressure, as in applying a tape to a body material in which adhesion is effected without the necessity of energizing the adhesive by a moistening agent.

By "a paper which is distortable" I mean to include a web of material made by a paper making process and which is formed with rugosities by toweling or creping.

The specially treated paper and its adhesive coating duplicate results attainable heretofore only with cloth backing and, in addition, has marked advantages thereover. The paper base adhesive tape—

(1) Produces a flexible sheet with more body and density than cloth, particularly where a creped or toweled paper is used;

(2) High tensile strength is obtained by loading the paper with glue, particularly when acted upon by an insolubilizing, tanning or formaldehyding agent. This renders the glue incapable of dissolving in water, which permits it to retain a considerable amount of its strength when in contact with water and hygroscopic materials which may constitute the adhesive film. When glycerine or other modifying elements are used, the saturated sheet is particularly flexible and resistant to breaking thereof by bending;

(3) The saturating and coating accomplish an action of welding, vulcanizing or glueing together of the paper fibres into one solid sheet, which makes impossible any laminating or splitting of the tape when removed from a surface to which it has been applied for some time or when put up in rolls without the use of slip sheeting;

(4) The treatment, particularly the saturating treatment of the paper, particularly when accompanied by insolubilizing, tanning or formaldehyding, also makes impossible any surface fibres breaking away or tearing away from the backing and sticking to the adhesive film when unwound from a roll. Thus, no modification of the adhesive film is effected.

(5) The hygroscopic agent, such as glycerine, retained in the saturated paper, maintains a water content in the paper backing of which it is a part. The adhesive film is therefore prevented from anchoring itself too securely to the reverse side of the backing, that is, a non-drying adhesive secures a hold or adheres to a dry surface much more thoroughly than to one which is moist or damp. Also, as the glue saturated paper has been insolubilized, tanned or formaldehyded, the adhesive coating will not unite with the backing as there is no solution possible between the rubber base adhesive and an insolubilized gelatin.

(6) The paper affords a material cheaper than cloth, which will not stretch as cloth does and, in painting operation, which enables the user to preserve the same for striping and the like painting or finishing operations. The paper base or backing being relatively thin, permits sharper definition in a painting operation for two tone color jobs as it lies substantially in the plane of the body to which it is affixed. Furthermore, the edge of a paper backed adhesive tape presents no feather edge nor will it unravel as cloth backing will, making it additionally desirable in painting operations.

(7) The paper backing with an adhesive layer at the edges thereof has the covering capacity of the full width of the paper but with minimum adhesion, permitting an economy in the adhesive coating, a ready removal from the body to which it is applied, avoiding the danger of marring the surface to which it is applied, may be unrolled or separated from an adjacent sheet with great facility and, in general, the paper backed

adhesive tape widens the field of utility due to cheapening the cost of the entire article.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a sheeted material including a creped or toweled fabric base and a pressure sensitive adhesive coating on one face thereof.

2. As a new article of manufacture, a removable adhesive tape comprising a paper backing formed with rugosities by creping or toweling and a pressure sensitive adhesive coating on one face thereof.

3. As a new article of manufacture, an adhesive sheet comprising a unified cellulosic backing and a pressure sensitive adhesive coating united to one surface of the backing.

4. As a new article of manufacture, an adhesive sheet comprising a unified cellulosic backing and a pressure sensitive adhesive coating united to one surface of the backing, the other surface of the backing being repellent to the adhesive.

5. As a new article of manufacture, a sheeted material including a water insoluble unified pressure sensitive adhesive united to one surface of a cellulosic backing, the opposite surface of said backing being unified by a repellent for said adhesive.

In testimony whereof I have hereunto signed my name.

RICHARD GURLEY DREW.

Technical's Exhibit 205

Sept. 4, 1923. 1,467,108

M. B. HODGSON

DENTAL FILM MOUNT

Filed Oct. 26, 1920

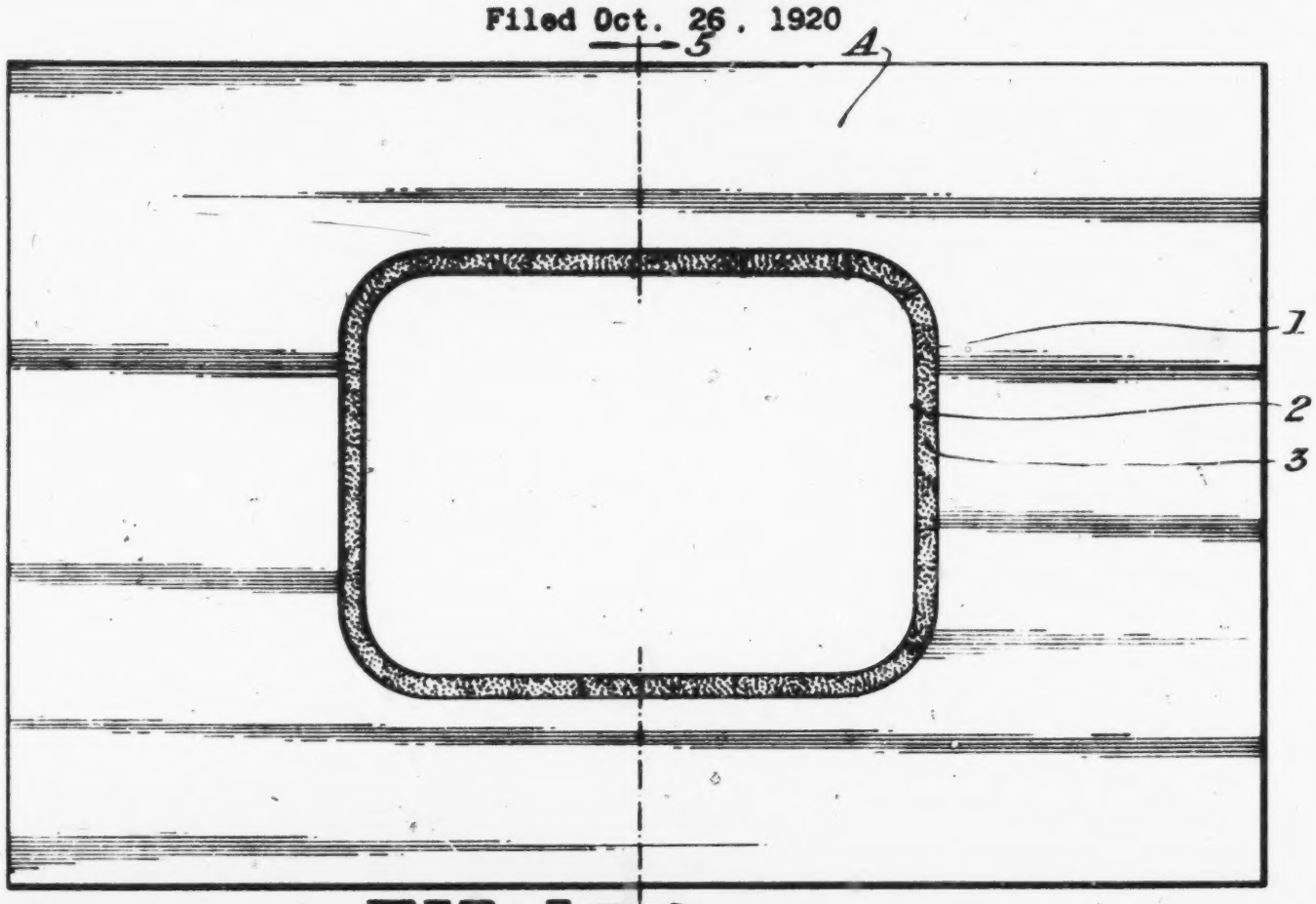


FIG. 1.

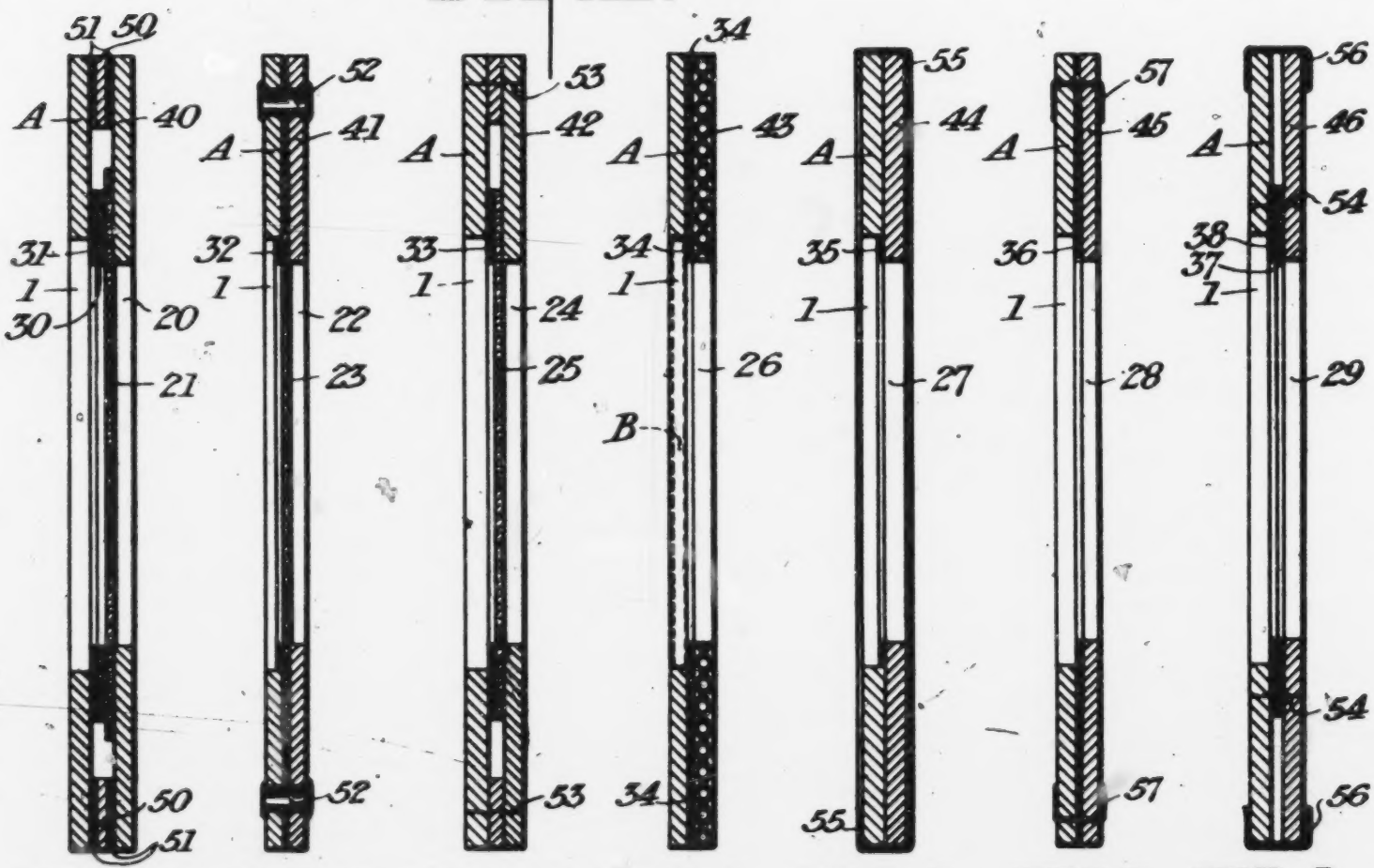


FIG. 2. FIG. 3. FIG. 4. FIG. 5. FIG. 6. FIG. 7. FIG. 8.

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Patented Sept. 4, 1923. 1,467,108

UNITED STATES PATENT OFFICE.

MILLARD B. HODGSON, OF ROCHESTER, NEW YORK, ASSIGNOR TO EASTMAN KODAK COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

DENTAL FILM MOUNT.

Application filed October 26, 1920. Serial No. 419,757.

To all whom it may concern:

Be it known that I, MILLARD B. HODGSON, a citizen of the United States of America, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Dental Film Mounts, of which the following is a full, clear, and exact specification.

This invention relates to mounts for photographic films and particularly to mounts adapted to hold small dental Rontgenographic negatives so that they may be examined by transmitted light, and so that they may be readily filed.

The objects of my invention are to provide such a mount that will be easily manufactured, into which the film may be placed with the minimum of care, and which will hold the film securely against accidental displacement, but which will permit of its removal. Other objects appear hereinafter.

I attain these objects by constructing the mount with a window that will transmit light, around which window is a marginal portion coated with a slow-drying adhesive to which the margin of the negative will adhere by pressure, and around this margin is a centering frame within which the negative fits, thus insuring its proper location with respect to the adhesive and the window.

Reference will now be made to the accompanying drawing in which like reference characters refer to like parts, and in which

Fig. 1 is a plan view of my improved mount.

Figs. 2 to 8 are respectively sections of different constructions of my improved mount, Fig. 5 being taken on the line 5—5 of Fig. 1, and differing in details that will be pointed out in the full description following.

My mount consists in general, of a front film-centering sheet which is designated A in all of the forms shown, and which has an aperture 1 of a size and shape to fit the particular film with which it is intended to be used, and of a back sheet which is shown as differing in construction in the different figures. In all forms, however, the back sheet has a central light transmitting window 2 smaller than, but registering centrally with, the aperture 1, and it carries on the margin around this window and within the aperture a coating of a slow-drying adhesive 3, the desired characteristic being that the adhesive shall remain "tacky" for a very considerable length of time. While the particular composition of the adhesive is not of importance, it is preferably a composition of rubber and coal tar pitch with any suitable softener, such as benzol, gasoline or chloroform. This remains for a long time sufficiently adherent to hold an ordinary film when the latter is merely pressed against it. Compositions such as that mentioned are well known and are used for adhesive tapes of various kinds, such as that known as "surgeon's tape."

In the form shown in Figure 2, there is a sheet 40 having a central aperture 20, covered by a strip of pyroxylin 21 which may be clear or transparent. A mask 30 of flexible material is coated with adhesive 31, and placed on the pyroxylin sheet, the inner edge of the mask registering with the edge of aperture 20. This whole assemblage constitutes a back member of the mount and is placed behind the front member A, with the apertures registering centrally and the outer edge of the mask carrying the adhesive extending beyond the edges of the aperture 1. There is thus left a margin of adhesive within the aperture 1, and surrounding the light transmitting window formed by the aperture 20 covered by pyroxylin 21.

In the form shown in Figure 3, the sheet 41 has a central aperture 22, covered by a pyroxylin sheet 23, to which is applied a band of adhesive 32 the inner edge of which registers with the edge of aperture 22, and the outer edge of which fits just within the aperture 1 when the elements are assembled. The sheet 32 and sheet 23 with the adhesive thereon comprise the back member of the mount.

In the form shown in Figure 4, the sheet 42 has a central aperture 24, covered by a pyroxylin sheet 25 to which is directly applied the border of adhesive 33, the inner edge of which registers with the edge of aperture 24, and which extends beyond the edges of aperture 1 when the parts are assembled.

In the form shown in Figure 5, which is my preferred form, a sheet 43, preferably of opaque fabric, has an aperture 26. The entire surface of the sheet is coated with adhesive 34 of the type described. This

form of mount is particularly easy to make since a long strip of fabric may be evenly coated, and passed through a stamping machine that cuts out the apertures, while a long strip of opaque paper is passed through another machine which cuts out suitably spaced and shaped apertures and the two strips are then joined by pressure only, in proper registry and cut between the apertures. A film B is indicated in dotted lines.

In the form shown in Figure 6, the sheet 44 has an aperture 27, and a margin of adhesive 35 around this aperture and fitting within the aperture 1.

In the form shown in Figure 7, the sheet 45 has the aperture 28 with a border of adhesive 36 around it, and extending beyond the edges of aperture 1 when the parts are assembled.

In the form shown in Figure 8, the sheet 46 has the aperture 29, with a mask 37, carrying adhesive 38, fitting around it, the mask and adhesive extending beyond the edges of aperture 1 when the parts are assembled.

In the preferred form, shown in Figure 5, the adhesive alone holds the elements together, but in the other forms it is necessary or desirable to employ other securing and binding means. Various alternative means may be used such as are shown in the several figures. These may comprise spacing strips 50, coated on each surface with adhesive 51; eyelets 52; stitching 53 or 54; edge binding 55 or 56; or wire fasteners 57, and these fastening means may be secured as shown at any desired points in the mount.

In use the negative is slipped into the aperture 1 of a holder and since the negative and aperture are correspondingly shaped, the negative will be at once correctly centered. It is then pressed down firmly around the edges and will at once be held in the mount ready for use. If the forms having a celluloid sheet are used the emulsion side of the negative is placed against this sheet so as to be protected against injury. It is intended that these mounts shall constitute filing means for the negatives, which are thus permanently mounted on them, but should it be desirable for any reason to remove the negative, this can be done since it can be stripped from the adhesive without injury to its diagnostic value.

The mount thus made, particularly in the preferred form, is obviously simple in manufacture and in use. It has no protruding nor movable parts that engage other mounts or that can break off. It is thin and easily filed; the films are mounted with the greatest ease and can be readily removed. It is not necessary, as in some mounts, to slide the film behind a frame, or to insert its corners painstakingly through slits or under tabs that are liable to break and that usually cause annoyance. It is only necessary to lay it in the countersunk opening, the edges of which act as locating abutments and press it slightly at the edges. While I have described the mount as used with dental X-ray negative films, it is obvious that any image-bearing sheet, differing widely in form and material, may be placed in a mount, the structure of which embodies my invention, and I contemplate all such changes and equivalents as falling within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A holder for an individual X-ray dental film comprising a backing sheet having a light-transmitting viewing portion, a second sheet attached thereto and having an opening, the first named sheet having just within the periphery of the said opening a narrow strip of slow-drying adhesive coating material, whereby a film shaped to fit said opening may be placed therein and will be removably held in place at its margins only by the narrow strip of adhesive material.

2. A mount for an individual X-ray dental film comprising a fabric back sheet with a viewing opening, and coated upon its entire front surface with a slow-drying adhesive material, and a front sheet with an opening larger than said first named opening, the front sheet adhering to the coating, the openings in the two sheets being so located that an adherent margin will remain around the smaller opening and within the larger opening, whereby a dental film shaped to fit said larger opening will be properly located by the edges thereof and may be adhesively but removably attached by the use of pressure only, and at the margins only, to the back sheet and within the aperture in the front sheet.

3. A transparency comprising a backing sheet having a light-transmitting viewing portion, a second sheet attached thereto and having an opening larger than said viewing portion, an image-bearing, light-transmitting sheet fitting within said opening and attached at its margins only, by means of a slow-drying adhesive composition, to the backing sheet.

Signed at Rochester, New York, this 22nd day of October 1920.

MILLARD B. HODGSON.

Patented Dec. 27, 1932 1,892,123

UNITED STATES PATENT OFFICE

WILLIAM F. ZIMMERLI, OF FAIRLAWN, AND ROBERT S. HAVENHILL, OF AKRON, OHIO, ASSIGNORS TO THE B. F. GOODRICH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

ADHESIVE COMPOSITION AND METHOD OF MAKING SAME

No Drawing. Application filed April 12, 1928. Serial No. 269,601.

This invention relates to adhesive compositions and particularly to plastic adhesive compositions which permanently retain their tack and plasticity upon extended exposure and to methods of making such adhesives.

The purpose of the present invention is to impart to reclaimed rubber a permanent plasticity and to increase materially its adhesive power by giving to it a longer "tooth" than had been heretofore possible with adhesives having a rubber base.

Briefly, the invention consists in fluxing reclaimed rubber with certain resins in such manner as to form extremely tacky and permanently plastic compositions of soft smooth uniform texture. Such tacky and permanently plastic compositions may be made by fluxing reclaimed rubber produced by any of the ordinary and commercial methods from tire casings, inner tubes, boots and shoes and mechanical goods, and hereafter generally referred to as "reclaimed rubber", with ester gum or similar resin, such as rosin, paracoumarone, manila copal and the like, hereinafter for convenience referred to collectively as "resin gums". This may be accomplished by placing the two constituents into an internal mixer and masticating with or without application of heat, the heat of mixing being sufficient to effect the fluxing which may nevertheless be accelerated by an external application of heat. It is to be understood, however, that the fluxing of the two constituents may be carried out on a regular rubber mill or even in an open vessel.

The plastics thus formed are miscible with so-calied rubber solvents in all proportions, such solvents as gasoline, benzol, carbon tetrachloride being particularly satisfactory and mixtures of these with acetone or other resin gum solvents preferably in proportions not in excess of ½ resin gum solvent have been generally found to give the most satisfactory results.

The plastics of this application have the capacity for admixing with large quantities of the rubber compounding ingredients, particularly pulverulent pigments like clays, gas black, pulverulent metallic oxides, etc., and softeners like pine tar oil, linseed oil, castor oil, asphaltums, etc.

In one embodiment of our invention, inner tube reclaim, 400 parts by weight, is placed in a masticator and ground resins of equal weight slowly added thereto, the mastication being continued until a soft, smooth tacky dough is formed. This dough is suitable for certain uses as an adhesive but because of the difficulty of spreading it in thin films, it is preferable for certain purposes to dissolve it in a quick-drying solvent. To do this, the dough is preferably placed in a cement churn and 200 parts by weight of gasoline and 100 parts of acetone are admixed therewith. This forms a heavy viscous but readily spreadable composition which, when formed into films or coatings and the solvent removed by evaporation, is as tacky and permanently plastic as the original dough from which it was made. It is this unusual property of the adhesive compositions of this application to retain their tack and plasticity, as well as their high adhesive strength, which gives to them their unusual value for a large number of purposes. Increased quantities of solvents may be added if desired.

In another embodiment, whole tire reclaim is broken down on a rubber mill and then placed in an internal mixer, and an equal weight of ground ester gum is slowly added and the two admixed until there is a complete fluxing of the two materials. This forms a soft smooth dough. Where compounding ingredients are to be added, softeners are preferably added with the resins and pulverulent pigment after the plastic dough has been formed, or even after the dough has been dissolved or dispersed in organic solvents. It is to be understood, however, that all these compounding ingredients may be added at any stage in the process of preparation. Thus, one recipe which has given very satisfactory results calls for pine tar in an amount equal to one-fifth the weight of the reclaim, and an anti-oxidant such as aldol-alpha-naphthylamine in an amount equal to one-fiftieth the weight of the reclaim, to be incorporated with the batch along with the resin gum. The plastic dough

thus formed is then dissolved in a mixed organic solvent, in an amount substantially equal in weight to the reclaim content, and consisting of two parts gasoline and one part acetone. Pigments, such as clay, blanc fixe, whiting, carbon black, etc., are now added to the dissolved plastic in such quantities as may be desired to form a viscous mass of desired consistency. Materials of the consistency of fresh putty are useful as waterproof plastic fillers and sealing compounds and have the unusual property of retaining their plasticity over extended periods.

While in the above specific examples, the reclaimed rubber and resin gum have been employed in equal parts, the proportions may be widely varied, 50 to 200 parts by weight of reclaimed rubber to 100 parts of resin gum having been found to give satisfactory products.

Numerous variations and modifications in the procedure hereinabove set forth may be made without departing from the invention hereof, it being particularly understood that incorporation with the plastic hereof of other materials, whether pulverulent, amorphous, or liquid, either during or after the preparation of the plastic are contemplated and comprehended within the scope of this invention.

We claim:

1. The herein described method of making a spreadable adhesive composition which comprises dispersing in reclaimed rubber a resin gum in amounts substantially within the range of 50 to 200 parts of reclaimed rubber to 100 parts of resin gum until a smooth end-product is produced, and thereafter reducing the viscosity of the mass to desired consistency by the addition of organic solvents.

2. The herein described method of making a spreadable adhesive composition which comprises dispersing in reclaimed rubber ester gum in amounts substantially within the range of 50 to 200 parts of reclaimed rubber to 100 parts of ester gum until a smooth product is produced, and thereafter reducing the viscosity of the mass to desired consistency by the addition of organic solvent comprising a rubber solvent and a resin solvent.

3. A spreadable composition composed of a plastic dough comprising reclaimed rubber and ester gum intimately admixed to form a dough of higher plasticity than either of its constituents and dispersed in an organic solvent.

4. A spreadable composition composed of a plastic dough comprising reclaimed rubber and a resin gum intimately admixed to form a dough of higher plasticity than either of its constituents the latter being present in amounts substantially within the range of 50 to 200 parts by weight of reclaimed rubber to 100 parts of resin gum, said dough being dispersed in an organic solvent.

5. A spreadable composition composed of a plastic dough, comprising reclaimed rubber and ester gum intimately admixed to form a dough of higher plasticity than either of its constituents, the latter being present in amounts substantially within the range of 50 to 200 parts by weight of reclaimed rubber to 100 parts of the ester gum, said dough being dispersed in organic solvent of the class comprising gasoline, carbon-tetrachloride, acetone or mixtures thereof.

In witness whereof we have hereunto set our hands this 9th day of April, 1928.

WILLIAM F. ZIMMERLI.
ROBERT S. HAVENHILL.

Technical's Exhibit 205

Hodson U. S. Patent 1,467,108.

(See opposite ☛)

Technical's Exhibit 207

Zimmerli U. S. Patent 1,892,123.

(See opposite ☛)

Drew II (Minnesota's Exhibit A)

1939. R. G. DREW 2,177,627

ADHESIVE SHEETING

Original Filed June 10, 1933

Fig. 1.

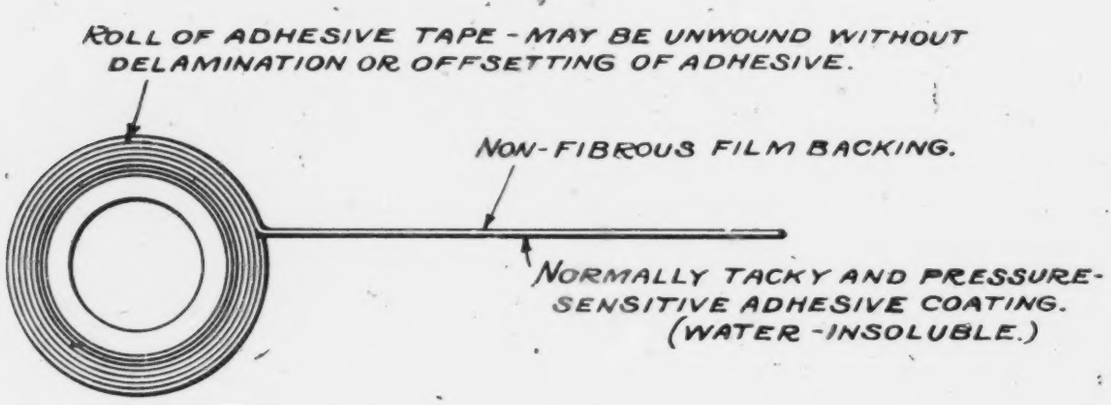


Fig. 2.

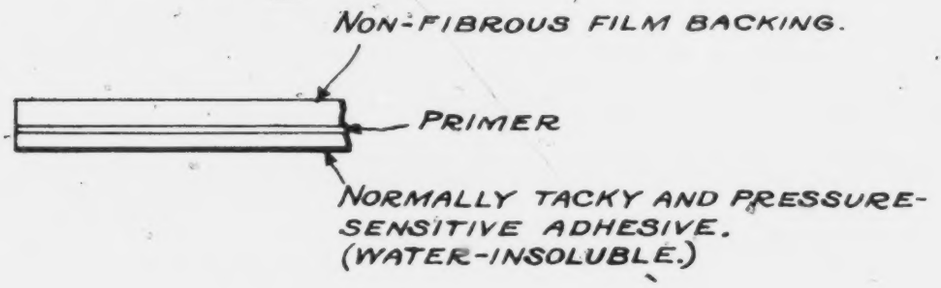
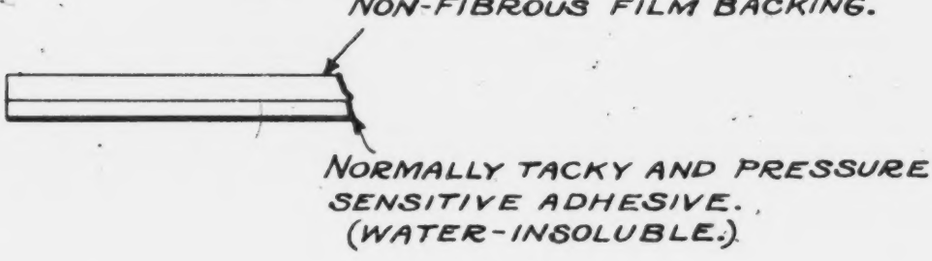


Fig. 3.



Inventor

Richard Gurley Drew,

By Paul Carpenter

Attorney

Patented Oct. 31, 1939 2,177,627

UNITED STATES PATENT OFFICE

2,177,627

ADHESIVE SHEETING

Richard Gurley Drew, St. Paul, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Original application June 10, 1933, Serial No. 675,291. Divided and this application February 18, 1938, Serial No. 191,259

16 Claims. (Cl. 91—68)

This invention relates to adhesive sheets having a backing with a non-fibrous surface (such as normal or waterproofed films of regenerated cellulose) and a coating of normally tacky and pressure-sensitive adhesive united thereto. While not limited thereto, the invention relates especially to transparent adhesive sheets, to adhesive sheets in the form of adhesive tapes which may be sold in stacked or coiled form, and to adhesive sheets or tapes which are well adapted to the sealing or securing of wrappers composed of non-fibrous lustrous cellulosic films and the like.

This application is a division of my co-pending application Ser. No. 675,291, filed June 10, 1933, and is in part a continuation of my co-pending application Ser. No. 534,386, filed May 1, 1931.

The development of packaging and wrapping sheets composed of thin, transparent and flexible non-fibrous films has raised special problems as to sealing or fastening with adhesives. Likewise, the desirability of using such films as backings for adhesive tapes cannot be met by use of the old conventional adhesives. Such sheet material is exemplified by gelatinized cellulosic materials which form films, such as regenerated cellulose, cellulose esters (as cellulose nitrate, cellulose acetate-butyrate and cellulose acetate), and cellulose ethers (as ethyl cellulose and benzyl cellulose), and by regenerated cellulose films which have been waterproofed by coating on one or both sides with a layer or film of a cellulose derivative. The popularity of these materials resides in such qualities as brilliancy, sheen and transparency, and in the later development of such material, in the quality of waterproofness. Ordinary glue type adhesives are insufficiently adherent by reason of the non-porous or highly glazed surfaces provided by this type of sheet material.

In accordance with this invention, sheets of such film material are provided with coatings of normally tacky and pressure-sensitive adhesive firmly united thereto. By "normally tacky and pressure-sensitive" it is meant that under ordinary atmospheric conditions the adhesive is stably in a condition such that it does not need to be activated by solvents or heat or otherwise prepared in order to secure good adherence to surfaces against which the adhesive coating (with its backing) may be pressed when used. An adhesive coating is provided which enables the adhesive sheeting to be affixed to smooth lustrous surfaces, such as non-fibrous cellulosic surfaces of wrapping or packaging sheets or films. An object of the invention is to provide a unified adhesive coating possessed of such coherence in relation to adhesiveness and so firmly united to its backing that the adhesive sheet may be stripped from smooth non-fibrous surfaces (not possessing special chemical affinity for the adhesive), to which it may have been temporarily applied, without offsetting of adhesive material. Hence the adhesive coating may be termed "non-offsetting", and this expression designates an important physical or physico-chemical property or characteristic of the adhesive coating, namely, that its coherency is greater than its adhesiveness. Further, an object is to provide adhesive sheets having an adhesive coating that is in elastic equilibrium with its backing so that warping and curling of the sheet, and blistering of the adhesive coating, are avoided.

In the accompanying drawing:

Fig. 1 shows a roll of adhesive tape, the tape having a non-fibrous film backing provided with a water-insoluble normally tacky and pressure-sensitive adhesive coating, which may be unwound without delamination or offsetting of adhesive;

Fig. 2 is a diagrammatic cross-sectional representation of a construction in which a primer coating is interposed between the backing film and the normally tacky and pressure-sensitive adhesive coating; and

Fig. 3 is a corresponding representation in which the primer coating is omitted.

Adhesive sheets are provided in which all components and the composite are transparent, so that the sheets may be applied without concealing the coloring or markings of the surfaces to which applied.

The transparent backing may be printed in reverse, on the face which carries the adhesive and prior to coating, to provide an adhesive sheet with the printing visible through and protected by the backing.

The adhesive sheets may be prepared with a surface continuously coated with adhesive, as in the case of ordinary adhesive tapes, labels and seals, or with the adhesive on certain areas only, as in the case of a packaging sheet provided with coated portions to permit sealing without the use of other sealing means.

It is preferred that the backing to which the adhesive coating is united be a transparent, flexible, non-fibrous film of gelatinized cellulosic material, such as regenerated cellulose (as normal or unwaterproofed "cellophane"), cellulose esters (as cellulose nitrate and cellulose acetate), cellulose ethers (as ethyl cellulose), or composites of such materials as, for example, a film of regenerated cellulose coated on one or both surfaces with a waterproofing film of a cellulose derivative (as a cellulose ester or ether). However, I may utilize backings comprised of materials other than gelatinized cellulosic materials, and which are either non-fibrous or are coated with non-fibrous films (preferably water-

proof) composed of cellulosic or other suitable material, including varnishes, lacquers, etc.

In its preferred form my invention is particularly applicable to transparent films of gelatinized cellulosic materials, such as regenerated cellulose, which is clear, transparent and lustrous. This may be made by forming an alkali cellulose compound, properly aged, of wood pulp or cotton liners, then xanthating to prepare viscose with carbon bisulfide and after careful filtration and clarifying by removing air or solid particles, casting the viscose in a coagulating bath of sulfuric acid and sodium sulfate. The film so cast is desulfurized, bleached, softened with glycerine, and then dried.

The regenerated cellulose film so produced may be waterproofed either on one side or on both sides, with a suitably compounded thin film of nitro-cellulose, cellulose acetate, cellulose ether, and similar cellulosic compounds. It will be understood that the waterproofing ingredients may include oxidized oils, varnishes and lacquers. The primary requisite is the application of these waterproofing films so as not to impair the lustrous and transparent characteristics of the sheet formed and to overcome any tendency to provide a warped sheet by the waterproofing layer that may be applied. Additionally, coatings such as transparent rubber, synthetic resins, and like materials may be used as a waterproof coating.

Where transparency of the adhesive tape is not of major importance, but where it is desired to provide a flat, unwarped exposed brilliant and lustrous surface, I have determined that an adhesive coating may be applied to the cellulosic film of the character previously enumerated and obtain a composite in which the adhesive is unified thereto, and in elastic equilibrium with the film, by using a composition made as follows:

Example A

A rubber compound and a tackiness augmenting agent in the form of a synthetic resin are used. Proportions suitable for ordinary temperate climates may comprise:

	Pounds
Plasticized, first quality plantation rubber, such as clear crepe or smoked sheets	10
Cumaron gum or resin	2
Zinc oxide pigment	½

The cumarone gum or resin is an artificial resinous material coming under the group name of cumarone and indene resins, which is the polymerization product of coal tar derivatives. The above ingredients are compounded on a rubber rolling mill to a plastic condition and then cut to desired body or consistency, using a rubber solvent such as benzol or a petroleum solvent, such as high test gasoline. In lieu of a synthetic resin, I may employ a low melting point natural resin, e. g., Burgundy pitch or pine oil roots. Burgundy pitch is soluble in both alcohol and benzol.

Example B

	Pounds
Plantation rubber	2
Mexican or wild rubber, high in natural resin content	5
Zinc oxide pigment	1

The ingredients above enumerated are compounded on a rubber mixing roll and then cut to the desired consistency in a rubber solvent, based upon the necessary viscosity for spreading this material.

It will be understood that the examples above given are for the purposes of getting the requisite adhesiveness in temperate climates. An increase in resinous material or wild rubber may be made for material to be used in colder climates, and in warmer climates the resin component may be reduced.

The resinous component may also be varied in its characteristics in its reactions to solvents by choice of the resinous material. Thus, for purposes of removal of the adhesive tape from some body to which it may be applied, the adhesive may be made so as to have a resin constituent which is soluble in a desired organic solvent, such as benzol, gasoline, acetone or alcohol. Thus, where it is desirable to make a surgeon's tape which is rendered removable by the application of alcohol, an alcohol soluble resin is added in the examples above cited. Such resin may be Burgundy pitch. This will permit alcohol to be used in removing a piece of adhesive tape from any surface, such as from the skin of a patient, by merely applying alcohol to the adhesive.

The rubber resin compounds in their solvents may be spread upon the backing directly, utilizing a knife spreader to uniformly and equally distribute this material upon the backing. The solvent may thereafter be removed by evaporation, preferably recovering the solvent by some suitable recovery method, leaving the rubber mixture upon the gelatinized cellulosic backing material. The coating so applied is firmly adherent and unified to the backing material and provides a normally tacky and pressure sensitive adhesive coating of a unified character, without in any way curling or warping the transparent gelatinized cellulosic film.

Where it is desired to obtain a clear composite of backing material and adhesive, the adhesive preferred by me for this purpose may be made as follows:

Example C

	Parts
Rubber (double break down latex crepe)	200
Para cumarone resin	85
Wood rosin	10
Liquid paraffin oil	5

(All parts are by weight.)

As a variation from the above, where lack of transparency is not objectionable and the addition of a colored hue to the composite of backing and adhesive material desirable, the formula may be varied as follows:

Example D

	Parts
Rubber (latex crepe)	250
Zinc oxide	225
Pine green light colored pigment	25
Wood rosin	137
Liquid paraffin oil	30

This type of adhesive is normally tacky and pressure-sensitive and has a greenish opacity. It will be understood that where a different color is desired to be imparted to the transparent film backing material, the pigmenting material may be correspondingly varied. Coloration in the adhesive may be used to neutralize or vary objectionable shades or colors in the transparent backing material.

If desirable, dyes may be used, particularly to preserve the transparency and attractive sheen of the composite, or the color (pigment or dye), may be added to the backing material itself. In either method of addition, where dyes are desir-

able and particularly for a clear blue transparency, indamine blue is suggested as of value for this purpose; pigmenting may be accomplished by such material as Prussian blue.

The zinc oxide filler, when used, serves as a reinforcing pigment imparting greater coherency and firmness to the adhesive coating. Colored pigments likewise function as reinforcing pigments and thus have a function in addition to that of coloring the adhesive.

In the examples C and D given above, paraffin oil has been included for purposes of plasticizing the rubber. I have found that in order to obtain maximum transparency and the highest possible bond strength and firmness of the adhesive inter se, the paraffin oil may be omitted.

Such adhesive coating, particularly valuable for this purpose, is as follows:

Example E

	Parts
Rosin	160 to 200
Thin latex crepe rubber	250
Beta naphthol	2.5

Approximately 3248 parts of benzol may be added to the above ingredients to provide a readily spreadable cement, and the ingredients may be incorporated in the benzol without the necessity for milling.

In the example given, beta naphthol has been specified and this is primarily used as an antioxidant. This material is desirable in the above formula, as well as in the other formulae given under A, B and C, in that the adhesives are given longer life.

Other antioxidants are desirable and may be included wherever rubber is used in the adhesive. Such antioxidants which may be used are as follows:

(1) Aldol-alpha-naphthylamine.

(2) Phenyl-beta-naphthylamine.

(3) Symmetrical-di-beta-naphthyl-para-diylene-diamine.

In the examples as above given, the proportions are by weight and variation may be made in the primary materials, as well as the quantity of the ingredients. Thus in the examples given under C, D and E, latex crepe, the rubber component, may be varied by substitution in part or in whole by smoked sheet rubber. Though the synthetic resins, such as cumarone resins above referred to are preferred, various blends of other synthetic resins may be utilized, in part or in whole. To a certain extent, the wood rosin may be substituted by various grades of gum rosin.

In making the adhesives, the rubber base and the resin base determine the tackiness exhibited by the finished product. This relationship, also coupled to a certain extent with the treatment given to the rubber, determines this factor.

In producing a clear adhesive, the relationship of plasticizer (above listed in the form of liquid paraffin oil) and resinous material may be considered as constituting the tack producing phase of the adhesive and up to a certain point the greater the quantity of the tack producing phase that is added to the rubber, the greater the tackiness exhibited in the rubber base adhesive.

In general, for every two parts of rubber base, by weight, one part by weight of the tack producing phase may be added. As indicated above, the resinous content may be varied to increase or decrease the tackiness. However, in order to provide a unified adhesive, satisfactory for purposes of unwinding of the tape from rolls, the resinous content must be retained within certain limits beyond which the adhesive is likely to offset at normal atmospheric temperatures.

In the formulae above cited, double break down latex crepe rubber has been referred to and the treatment of this product alone, as well as the addition of the tack producing phase therewith, will control the characteristics of the adhesive layer. Thus, double break down latex crepe, as contemplated by me above, results from milling latex crepe rubber for approximately fifteen minutes to plasticize the same, with or without heat, and after aging for twenty-four hours, is again plasticized in a mill. At this stage, the material is suitable for addition to the material constituting the tack producing phase. This may be accomplished as follows:

Method A.—200 parts of rubber (double break down latex crepe from the rubber mill as above described) are placed in an internal mixer where the para cumarone resin, wood rosin and paraffin oil (where this is used) are gradually added during the mixing operation to thoroughly incorporate the same into the rubber. No solvent need be used if the mixer is powerful enough to knead these resinous materials into the rubber. When this dry mixing has been thoroughly accomplished, a rubber solvent, such as heptane or benzol, is introduced while the internal mixer is maintained in operation. This action is continued until complete solution results. The quantity of solvent added is in accordance with the means to be employed for spreading this material upon the backing material.

Method B.—200 parts of rubber (preferably double break down latex crepe as above made) are placed in a stirring equipment where paddles agitate the solvent and other ingredients into solution. When 200 parts of rubber have been placed into this mixer, the agitating member is started and a quantity of rubber solvent, such as heptane or benzol, is added to dissolve the rubber. The resinous materials in this particular example, para cumarone resin, wood rosin and the liquid paraffin oil (where this is used), are dissolved in a separate mixer, using an additional quantity of solvent, for example heptane or benzol. When these parts are uniformly distributed and in solution, the parts from each mixer are combined. The quantity of benzol or other solvent is calculated in accordance with the method which may be used for spreading it upon the backing material. The solvent is evaporated after coating or spreading of the adhesive upon the backing material.

In use, the adhesive as above described may be directly applied to the backing or sheets of transparent gelatinized cellulosic materials, previously enumerated, and forms a desirable product.

Where considerable unification is desired between the adhesive layer and the backing material, to assure proper anchorage of the adhesive layer with the backing material, thereby assuring satisfactory unwinding or separation when the composite is formed into rolls or stacks, it is preferred to first coat the sheet of gelatinized cellulosic material with a priming composition. Priming on one surface is particularly effective with sheets formed of regenerated cellulose. The priming operation consists of first coating the backing material before application of the adhesive materials previously described.

The priming composition as preferred by me is a solution of a rubber resin mixture in an or-

ganic solvent in which the solid materials may be varied from 15 to 50% with 85 to 50% of the solvents used. Preferably the solids constitute about 17% of the solution so prepared.

Primer No. 1

A preferred composition comprises:

	Parts
Rubber (latex crepe)	2
Resin (such as pine pitch or wood rosin)	4
A filler, such as whiting (optional)	1

These two or three ingredients, as listed, constitute the solid components in the priming mixture above enumerated.

It is preferred that the deposition product resulting from coating with the priming composition be one whose solid components retard the solvent action of the overlying material when coated thereon as a solution. That is, the solids which may be contained and are present in the primer composition are of such nature that after deposition they are difficultly soluble (only slowly dissolved) in the solvent used for plasticising and coating the adhesive layer. In the example above given, such properties may be imparted to the deposition product by utilizing rubber which has been partially vulcanized, plasticising in a mixing device such as an internal mixer in the presence of heat, sufficient to render the mass sticky and to cause the ultimate primer coating to have a strong bonding action. As an additional operation, a solvent retardent may be added. Though whiting is illustrated, other fillers may be used, such as zinc oxide, which serve as reinforcing pigments to give greater coherency and firmness, in addition to any solvent retarding action which they may have.

Though it is indicated that high grade vulcanized rubber, plasticized to tackiness, may be utilized with some degree of success in the example above cited and identified as Primer No. 1, it is preferred, particularly where transparency is desired, to use the combination of ingredients above identified, and to merely add during the mixing operation the requisite quantity of sulphur and accelerators. The quantity of these ingredients, if any, is merely sufficient to render the rubber component difficultly soluble in the solvent present in the solution of the adhesive composition, so made for spreading purposes, without reducing the quality of this priming coat to unify with the adhesive layer superimposed thereover.

Primer No. 2

Rubber, in the form commonly referred to as latex crepe, with the resin content in the proportions above indicated, has added thereto sulfur and accelerators. These are vulcanized with heat after intimate admixture and, while in the softened condition, are mechanically milled until a sticky mass, soluble in benzol or naphtha, is obtained. The amount of benzol or naphtha added is to obtain the requisite fluidity and these solvents may be added to the solid components in quantities of from 50 to 85% as compared with the rubber and resin content.

The primers above described under 1 and 2 may be further rendered resistant to the solvent action of the overlying adhesive to be applied in a subsequent step, by the use of "Vulcoloc" as a superimposed priming composition. This material is, to the best of my knowledge, a reaction product of rubber and a sulphur bearing acid. Vulcoloc may be applied directly to the backing material prior to the application of the solution of adhesive material. Application of an organic solution of the adhesive does not affect the coating of the Vulcoloc primer as applied.

A material which is suitable as a substitute for rubber in the primer, is an artificial or synthetic rubber known as "Duprene" ("Neoprene") which is a polymerized diolefine compound.

Additional examples of transparent primers which anchor the adhesive coating to regenerated cellulose such as Cellophane, whether waterproofed or untreated (ordinary), and to films of cellulose derivatives (such as cellulose acetate, cellulose nitrate and ethyl cellulose), etc., are as follows:

Primer No. 3

	Parts
Selected tube reclaim rubber	90
Latex crepe rubber	10
Whiting	40
FF wood rosin	140

Primer No. 4

Selected inner tube reclaimed rubber treated further to remove pigment	90
Latex crepe rubber	10
FF wood rosin	140

In the above examples, still better results will be obtained by using, in place of FF wood rosin, a heat-treated wood rosin known as "Solros" wood rosin.

The reclaim rubber and latex (and whiting or other reinforcing pigment when used) are compounded together on the ordinary type of rubber mill and milled for 30–40 minutes. This milled base is then transferred to a heavy duty internal mixer (such as a Baker Perkins Mogul type mixer) and milled for 1–2 hours with 10–20 lbs. steam pressure in the heating jacket. The rosin is then added and mixing is continued for another hour. The jacket steam is then turned off and the mass cooled. The requisite amount of solvent (heptane or benzol for example) is then added, preferably in amount equal to 4–5 parts by weight per part of reclaim rubber. Mixing is continued, generally for about ½ hour, until the whole mass is homogeneous. The resulting primer composition or solution is then ready for application to the backing.

In this method of compounding, the reclaim rubber becomes plasticized by the mechanical working in the presence of heat and air, and is further plasticized by the rosin which is thoroughly incorporated with the rubber.

The reclaim rubber is superior to raw rubber, for use in the primer, for several reasons, including: The primer coating is rendered difficultly soluble in the rubber solvent contained in the subsequently applied adhesive solution, because the reclaim rubber is in a partially vulcanized state which greatly decreases the rate of solution in rubber solvents. The primer coating has a greater bonding action, i. e., becomes more firmly unified to the backing and to the adhesive coating, due to the higher adhesion value of the reclaim rubber resulting from the heating cycle and amount of break down experienced in the reclaiming process. These features are obtained without sacrifice of firmness or coherency of the primer coating, due to the high cohesiveness of the reclaim rubber resulting from its prior vulcanization. If raw rubber were subjected to the same treatment, it would have softness and stickiness but would lack adequate cohesiveness.

The reclaim rubber above referred to in the

formulae for making the primers is preferably made as follows:

Light colored inner tube stock may be utilized, though other forms of culcanized rubber may be used. Where inner tube stock is used, it is chopped up on mill rolls, preferably of the type utilizing breaker members, simulating heavy gear teeth. Rolls of this character operate in pairs, the top one being free to move up and down, while the lower one is stationary. Relative rotation of these rolls serves to chop up the scrap. After the scrap is chopped and torn apart, it is fed to the breakers, which pulverize it further, whereupon it is then passed over a screen and the fine particles separated out. The coarse particles are recirculated through the breakers until they also go through the screen. The fine particles are then charged into horizontal digestors, where they are treated with caustic soda solution, the heating of the stock being carried out under a steam pressure of about 40 pounds while being agitated. This treatment is carried out from 8 to 24 hours, to remove all fibres and free sulfur, and to plasticize the rubber. After digestion as above described, the stock is washed with water until practically free from caustic. The stock is then charged into a continuous belt drying system, where it is dried at a rather low temperature. The stock is then ready for the mill room, where the first operation is to mass these small particles together on a large mill. After consolidation on the large mill, the rubber is then run through refiners, which cause grinding and crushing of any hard particles in the stock. The product is then passed through a strainer in which the rubber is extruded through heavy mill screens into small rod-like forms, after which they are massed together into sheets or slabs.

In some cases the procedure above described may be slightly varied, for example, when certain types of inner tube reclaim are desired, the pulverized scrap is heated in the presence of steam alone, without any caustic. It is thereupon, after being heated, sent directly to the mill room, without any further treatment.

In general, the primer layer is one which makes satisfactory bond with the regenerated cellulose backing material, or the gelatinized cellulosic material constituting such backing material, which may include a waterproofing layer of cellulosic compounds. Such primer may be a layer of a synthetic resin, such as one of the group of polyhydric-alcohol polybasic-acid resins, which makes excellent union with gelatinized cellulosic materials and with rubber. In the event that it is desired to wholly eliminate the above types of primer layer and waterproof the backing material of regenerated cellulose, where this is used, the waterproofing layer over the regenerated cellulose backing material is one which has affinity for the adhesive coating so that the adhesive coating makes better anchorage than would be the case if the regenerated cellulosic film were used alone. Such waterproofing materials which have a primer function, may be a highly plasticized nitrocellulose or cellulose acetate, oxidized and gelatinized drying oils, synthetic resins, such as phenolic condensation resins, or those of water white characteristics, such as urea resins. Those ingredients are chosen, as above indicated, which will be difficultly soluble in the solvent used in the solution of the adhesive layer composition subsequently applied thereto, so as not to result in a weakened structure preventing proper unification between the adhesive coating and the backing material.

Where nitrocellulose is used for the waterproofing layer, it may be highly plasticized by resinous material, which may be used in the proportion of 67–50% to 33–50% of nitrocellulose material. The following is given as an example of a solution which when applied to the regenerated cellulose backing, will form a coating of this type upon evaporation of the solvents:

	Parts
Nitrocellulose, such as "½ second cotton"	9
Xylol	15
Cellosolve (ethylene glycol monoethyl ether)	10
Resin, such as "Rezyl 12" (a condensation product of castor oil and phthalic anhydride)	12
Dammar cut (a solution of 40% dammar resin and 60% benzol)	16

The method of application of the coating materials above described will, to a large extent, depend upon the character of the coating. The primer and adhesive coatings may be successively applied where these are used in solutions of volatile solvents, by an offset process from rollers uniformly coated with the primer compositions or the adhesive composition. With the more viscous composition of either primer or adhesive, these papers may be coated upon the backing by a knife spreader. For the more plastic form of either composition and where unification is desired, calendering or frictioning of these materials may be resorted to, to apply either the priming coat, or the adhesive coat or both.

As an example of one method which may be followed in preparing the composite, the following procedure is recommended. A web of regenerated cellulose film of the desired thickness (which may have been printed on the face receiving the primer) is carried through a set of vertically positioned squeeze rolls. The lower roll has transferred to it, or dips into, the solution of the primer composition. A uniform layer of primer is applied at this point to the film or web of backing material. The web thus prepared travels from the squeeze rolls, to a duct for removing and drying off the solvents in the primer. The web then is directed to a contrivance for coating, at which point a doctor knife or coating knife is used to spread a film of the composition of adhesive material. The composition is directly applied over the primer and the composite as coated is either hung in festoons or travels through a drying duct, at which point sufficient time is allowed for complete removal of the solvent, and to form the deposition product to the desired consistency, due to the solid components present, for tackiness. If heat has been utilized to separate the solvent from the deposition product resulting in the adhesive, the composite thus formed may be cooled and brought to room temperature, to render the product in more convenient form for stacking or winding into rolls. Where wound into rolls, the composite thus formed is then cut or converted into small rolls, suitable for trade requirements.

The adhesive composition as deposited upon the film as heretofore described is one which is normally tacky and pressure-sensitive. It is of particular utility in connection with the lustrous, highly polished backing material described, in that the adhesive layer is in equilibrium with it and will not alter or warp its appearance. As indicated, the adhesive layer is unified in that it

has great adhesion inter se (coherence) and when applied forms a unified product with the backing material. When wound into rolls or formed into stacks, the lustrous surface of the backing will not be modified, no offsetting will occur and ready separation is assured of the entire composite from its adjacent layer.

Where the product may encounter low humidities or low temperatures, it may be desirable to coat the back side of the backing material with a protective coating, such as a thin film of glycerine. In such event, a protective coating is applied which is not disintegrated by or which does not interfere with the adhesive action of the adhesive layer. It will be understood, however, that under ordinary conditions, the composite of backing material and adhesive layer as hereinbefore described is a complete unified product and no further treatment need be made.

The foregoing adhesive coatings are characterized by being water-insoluble and in themselves make for a waterproofing of the underlying base.

Primer No. 5

Casein	3 to 8 pounds, preferably 5 pounds
Water	9 to 40 pounds, preferably 30 pounds
Concentrated ammonium hydroxide	1 to 8 pounds, preferably 3 pounds
Rubber latex (preferably 60% concentration)	3 to 25 pounds, preferably 16 pounds

The characteristic features of the above primer are that it is compatible with the backing material where it is regenerated cellulose, such as Cellophane, flexibilized with glycerine, or such cellulosic material including the cellulosic compounds previously enumerated, coated with waterproofing materials, and is also compatible with any of the previously mentioned water-insoluble pressure-sensitive adhesive coatings.

In the formula of Primer No. 5, I have referred to the use of casein in connection with rubber latex. The casein is more or less water-soluble, especially in the presence of the ammonium hydroxide, and not only facilitates anchorage to glycerine-treated Cellophane when this is used as the backing, but is also compatible with the water-soluble type of adhesive coating when the priming coat is finally dried. This water-insoluble material, as included in the primer, may be supplemented by or substituted by glue, isinglass or gelatin, and other similar water-soluble materials, which not only facilitate the dispersion of the latex but also include the feature of being compatible with water-soluble materials. It will further be noted that though in the preferred form of the primer, where casein is used, it is preferred to use ammonium hydroxide in order to facilitate the solution of the casein, the quantity of ammonium hydroxide may be reduced where other water-soluble materials are used, and merely sufficient ammonium hydroxide is used to prevent untimely separation of the solids of the rubber latex.

The rubber included in the emulsion type of primer is for purposes of having some material compatible with the water-insoluble adhesive coating and water-insoluble backing, and while I have specified in my preferred form of primer the inclusion of a dispersion of rubber latex, dispersions of natural and synthetic resins, particularly those which will give a clear and colorless or water-white residium, may be substituted for the latex.

In general my emulsion type primer may be characterized as a double phase primer to the extent that it includes emulsified ingredients of both water-soluble and water-insoluble characteristics, in dispersed form.

It will be understood that in the application of the primer to the backing material, drying is effected after coating, before the adhesive coating is applied.

The use of water-soluble pressure-sensitive adhesive coatings is described in more detail in parent application Ser. No. 675,291, filed June 10, 1933, and in my companion application Ser. No. 191,261, filed of even date herewith.

The use of a plasticized rubber primer is claimed in my application Ser. No. 191,260; and the use of a cellulose-derivative backing in my application Ser. No. 191,264; both filed of even date herewith.

What I claim is as follows:

1. An adhesive sheet comprising a transparent flexible non-fibrous film backing having smooth lustrous surfaces and a non-offsetting normally tacky and pressure-sensitive water-insoluble adhesive coating firmly united to said backing, said adhesive including a coloring material visible through the backing so that the back surface has a lustrous colored appearance.

2. An adhesive sheet comprising a transparent flexible film backing having non-porous surfaces, and a flexible water-insoluble adhesive coating having a rubbery base and so composed that it is non-offsetting and normally tacky and pressure-sensitive, said adhesive coating being firmly united to said backing and the adhesive and backing being of such kinds that the back surface is inactive to the adhesive coating to a degree permitting unwinding of the adhesive sheet from rolls thereof without delamination or offsetting of adhesive, and the adhesive including a coloring material visible through the backing.

3. An adhesive sheet comprising a transparent flexible non-fibrous cellulosic film backing and a non-offsetting normally tacky and pressure-sensitive water-insoluble adhesive coating containing a reinforcing and coloring pigment firmly united to and visible through said backing, the back surface of the backing being lustrous and inactive to said adhesive coating to permit removal or unwinding from stacks and rolls without perceptible offsetting of adhesive.

4. A transparent adhesive sheet comprising a non-fibrous transparent flexible film backing having non-porous surfaces and a water-insoluble normally tacky and pressure-sensitive transparent flexible adhesive coating, said adhesive coating being firmly united to said backing and the adhesive and backing being of such kinds that the back surface of the backing is inactive to the adhesive coating to a degree permitting unwinding of the adhesive sheet from rolls thereof without delamination or offsetting of adhesive.

5. A transparent adhesive sheet comprising a non-fibrous transparent flexible film backing having non-porous surfaces and a water-insoluble transparent adhesive coating having a rubbery base and so composed that it is non-offsetting and normally tacky and pressure-sensitive, said adhesive coating being firmly united to said backing and the adhesive and backing being of such kinds that the back surface of the backing is

inactive to the adhesive coating to a degree permitting unwinding of the adhesive sheet from rolls thereof without delamination or offsetting of adhesive.

6. A transparent adhesive sheet comprising a non-fibrous transparent flexible cellulosic film backing having non-porous surfaces and a water-insoluble transparent adhesive coating having a rubbery base and so composed that it is non-offsetting and normally tacky and pressure-sensitive, said adhesive coating being firmly united to said backing and the adhesive and backing being of such kinds that the back surface of the backing is inactive to the adhesive coating to a degree permitting unwinding of the adhesive sheet from rolls thereof without delamination or offsetting of adhesive.

7. A transparent adhesive sheet comprising a non-fibrous transparent flexible regenerated cellulose film backing having non-porous surfaces and a water-insoluble transparent adhesive coating having a rubbery base and so composed that it is non-offsetting and normally tacky and pressure-sensitive, said adhesive coating being firmly united to said backing and the adhesive and backing being of such kinds that the back surface of the backing is inactive to the adhesive coating to a degree permitting unwinding of the adhesive sheet from rolls thereof without delamination or offsetting of adhesive.

8. An adhesive sheet comprising a transparent flexible non-fibrous cellulosic film backing having smooth lustrous surfaces and a water-insoluble normally tacky and pressure-sensitive non-offsetting transparent rubber-resin type adhesive coating firmly united to said surface, the composite sheet being transparent.

9. An adhesive sheet comprising a regenerated cellulose film having united thereto a waterproofing coating comprising a cellulose ester highly plasticized with a synthetic resin and providing a smooth non-fibrous surface, and a water-insoluble normally tacky and pressure-sensitive non-offsetting rubber-resin adhesive coating united to said surface, the parts of the composite adhesive sheet being transparent, and so firmly united together that the adhesive sheet may be unwound from rolls without delamination or offsetting of adhesive.

10. An adhesive sheet comprising a transparent flexible non-fibrous film having non-porous surfaces, a coating thereupon of a non-offsetting transparent normally tacky and pressure-sensitive water-insoluble adhesive, and an interposed transparent primer coating unified both to said surface and to said adhesive coating, the composite sheet being transparent and its parts so firmly united that it may be unwound from rolls thereof without delamination or offsetting of adhesive.

11. A transparent adhesive sheet comprising a non-fibrous transparent flexible film backing having non-porous surfaces, a water-insoluble transparent adhesive coating having a rubbery base and so composed that it is non-offsetting and ormally tacky and pressure-sensitive, and an interposed transparent flexible primer coating firmly bonding said adhesive coating to the backing, the adhesive sheet having its parts so firmly united that it may be unwound from rolls thereof without delamination or offsetting of adhesive.

12. A transparent adhesive sheet comprising a non-fibrous transparent flexible cellulosic film backing having non-porous surfaces, a water-insoluble transparent adhesive coating comprised of raw rubber blended with a compatible tack-producing resin in proportions such that the adhesive coating is non-offsetting and normally tacky and presure-sensitive, and an interposed flexible transparent primer coating firmly bonding said adhesive coating to said backing.

13. An adhesive sheet comprising a transparent non-fibrous cellulosic film backing, a coating thereupon of a non-offsetting normally tacky and pressure-sensitive water-insoluble adhesive containing a coloring material, and an interposed transparent primer coating unified both to the backing and to said adhesive coating, the adhesive being visible through the backing and causing the back surface of the backing to have a colored appearance.

14. An adhesive sheet comprising a transparent flexible non-fibrous film backing, a coating thereupon of a non-offsetting normally tacky and pressure-sensitive water-insoluble adhesive containing a coloring material, and an interposed transparent primer coating bonding said adhesive coating to said backing, the adhesive being visible through the backing and causing the back surface of the backing to have a colored appearance.

15. An adhesive sheet comprising a non-fibrous flexible film backing having non-porous surfaces and a water-insoluble normally tacky and pressure-sensitive flexible adhesive coating, said adhesive coating being firmly united to said backing and the adhesive and backing being of such kinds that the back surface of the backing is inactive to the adhesive coating to a degree permitting unwinding of the adhesive sheet from rolls thereof without delamination or offsetting of adhesive, said adhesive sheet transmitting light so that the sheet will not conceal the coloring or markings of surfaces to which applied.

16. An adhesive sheet comprising a non-fibrous flexible film backing having non-porous surfaces, a water-insoluble normally tacky and pressure-sensitive flexible adhesive coating, and an interposed flexible primer coating firmly bonding said adhesive coating to the backing, the adhesive and backing being of such kinds that the back surface of the backing is inactive to the adhesive coating to a degree permitting unwinding of the adhesive sheet from rolls thereof without delamination or offsetting of adhesive, said adhesive sheet transmitting light so that the sheet will not conceal the coloring or markings of surfaces to which applied.

RICHARD GURLEY DREW.

Drew II (Minnesota's Exhibit A)

Drew U. S. Patent 2,177,627.

(See opposite ☛)